Universities Quarterly

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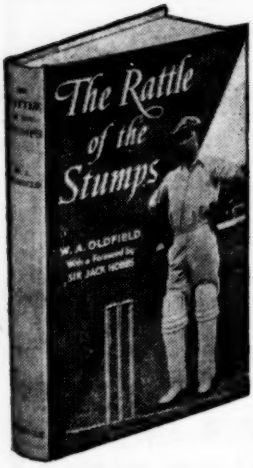

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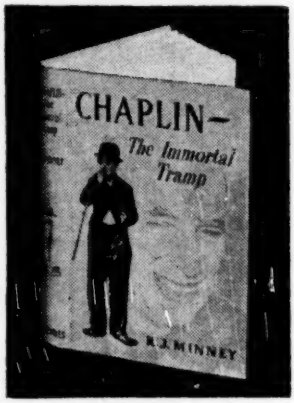

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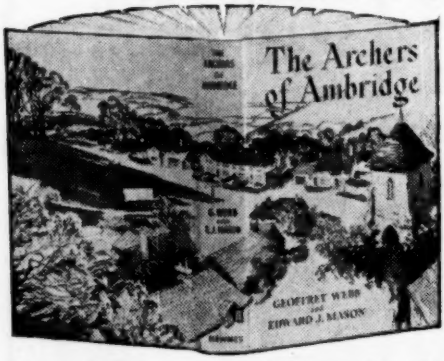

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EDITORIAL NOTES

University of Hull

A CHARTER granting full university status has been conferred on the University College of Hull. The College was incorporated in 1927 with a foundation gift of £250,000 from the Right Honourable T. R. Ferens, a prominent Hull industrialist. To this gift was soon added a bequest of £100,000 from his friend, Mr. G. F. Grant. The City of Kingston-upon-Hull made a grant of £150,000 for the erection and equipment of the first buildings on a site given by Mr. Ferens to the City and transferred to the College for this purpose. The whole of the foundation gift was thus available to provide an endowment for the College which enabled it to live through the lean years until it was recognized by the University Grants Committee in 1945 and became eligible for Treasury grants.

The main change which university status implies is, of course, the power to grant degrees. In the two Faculties of Arts and Science, there will be Special degrees in one main subject, and Joint degrees in two main subjects. Honours will signify not a kind of degree but a standard of performance in the final examination. Within this broad framework, the choice of subjects will be as flexible as possible. There will be no intermediate examination; students will enter immediately on the three-year course for a degree. The assumption on which this scheme is based is that general education is the responsibility of the schools. While it may need modification in the light of experience, it has been based on a careful consideration of recent discussions on the relation between school and university studies.

Student numbers

Student numbers are still falling. The latest Returns from Universities and University Colleges published by the University Grants Committee for 1952–3 show in detail how the drop from 83,458 full-time students in 1951–2 to 81,474 in 1952–3 was, with very few exceptions, fairly evenly spread throughout the universities and colleges of Great Britain; the reduction in numbers reading Arts accounted for about half the total loss. Unofficial indications are of a further, although perhaps slighter, fall in total numbers this session.

Admissions in 1952–3 were 21,355, as compared with 22,414 in the previous session; although official figures have not yet been published, there appears to have been a slight rise in total admissions last autumn.

Evidently energetic counter-measures have been adopted by many universities to arrest the decline in admissions and they are now having some effect. It looks as if the position may soon become stabilized; obviously those concerned with estimating fee income have strong reasons for hoping that it soon will be so. The question is still open whether, if stability is achieved during the next year or two, the point at which this is reached is necessarily the best one from the point of view of the universities and of society in general. Are some universities capable of educating more people than they do at present? Are many applicants who might have been better advised to attempt a less well-trodden path elbowed out in the competition for the more obvious subjects? We are still without much hope of making progress in these matters until we have more information of the sort that will no doubt be produced by the forthcoming enquiry which has been arranged by the Vice-Chancellors' Committee.

Adult Education

The extra-mural world is awaiting with more than ordinary interest the report of the committee appointed last year by the Minister of Education to consider, under Dr. Ashby's chairmanship, the finance and administration of adult education. Since the beginning of this quinquennium the departments have been hampered by financial restrictions and uncertainty about future arrangements, and it is hoped that when the Minister has received the committee's report she will be able to announce a policy in regard to grants which will permit development to be planned with confidence. Meanwhile things are not standing still. Changes in the character of extra-mural provision have been taking place which are raising interesting questions about its future. From 1908 to the end of the last war the principal activity of the departments and Joint Committees was the provision of tutorial classes for W.E.A. students. The subjects studied were the humanities and social sciences, and the purpose of the work was the education of the students as persons and as citizens. This work is continuing on approximately the pre-war scale; but the post-war period has seen a big development of work organized independently of the W.E.A. Extension courses are now provided not only on a much greater scale than at any time before

1945; they cover a much wider range of subjects than is spanned by the tutorial classes, and attract many students not interested in the special purposes of the W.E.A. Many courses are arranged in science and in a variety of technologies, and many more, especially in social studies, have a strong vocational appeal. In some quarters this development is viewed with misgiving, as threatening to divert resources from the liberal purposes of the older work. In others it is welcomed as a natural and proper extra-mural activity of universities which themselves have extended their range of studies. Along with a growing tendency for some departments to organize schemes of trade union education directly with the unions themselves, it is compelling reconsideration of relations between the universities and the W.E.A. Altogether the next year or two seem likely to be specially important ones for the future of extra-mural work, in respect both of content and of organization.

University College, Dublin: a Centenary

In July University College, Dublin, observed the centenary of Newman's installation as Rector of the Catholic University of Ireland. Like so many of the ventures with which Newman was associated, the Catholic University seemed at the time doomed to frustration by the apathy of most and the malevolence of some of his co-religionists in England and Ireland. But the whole episode is a classic warning of the danger of judging the value of enterprises by their immediate results. From Newman's seemingly abortive rectorship has sprung the now large and flourishing National University of Ireland; and the immediate fruits of his rectorship, the lectures *On the Scope and Nature of University Education*, are an imperishable legacy to the universities of the world. We can apply to Newman himself what, in his inaugural address in November 1854 to the newly founded 'School of Philosophy and Letters' in Dublin (an address on 'Christianity and Letters'), he said of the 'real heroes of Holy Writ and ecclesiastical history': that they 'did most when they fancied themselves least prosperous, and died without being permitted to see the fruit of their labours'. Newman was no doubt much in the minds of those who gathered in Dublin; and it is a measure of his greatness that we can be certain he was present, not only as the central figure in an old story, but also and even more as a man whose words still live and offer their challenge to all those who are concerned with the idea of the university.

THE IDEA OF UNIVERSITY EDUCATION

Sir Charles Morris

I

The Joseph Payne Memorial Lectures delivered at the College of Preceptors in London in February and March, 1954.

HISTORICALLY and in essence a university is a home of learning, and its functions as a place of education must fit into the general picture of a home of learning. If you do not feel entirely happy about this conception of a university I would ask you to be patient for a time and see how far, as the argument develops, your doubts and dissatisfactions strengthen or weaken themselves.

When I say a 'home' of learning I mean a home where scholars and thinkers can live the lives of scholars and thinkers, and support and comfort one another in what are after all rare and easily misunderstood or undervalued forms of activity. When I say 'learning' I mean all forms of the unqualified pursuit and study of truth, and especially those forms of the pursuit of truth which are not likely to be conducted at a given time for the sake of some practical profit or convenience—what is commonly called (the phrase is not an entirely satisfactory one, though it is perhaps well understood) the pursuit of truth for its own sake. Aristotle speaks somewhere in his *Ethics* of actions which would still be performed even if no pleasure came to the agent from performing them. Very much of the pursuit of new knowledge in universities, and to some extent elsewhere, would still be devotedly conducted even if no practical profit or convenience were likely to result from it.

On the face of it it would be natural and right for a home of learning to feel responsible for taking action to ensure the perpetuation of the race of scholars. But this aim in itself would confine the 'educational' interest of the university to those young men and women with the gifts and interests to fit them to people the universities of the coming generations; and there is no doubt that older university scholars do take a very deep and special interest in the education of such people. In a country like ours, where universities are comparatively few in number and small, these future university scholars tend to be of a recognizable and natural type, and their needs and demands will cause them to be offered an education of a different kind from that which would be designed for a student body with a very much wider variety of gifts and interests. In a community

which has as many universities and colleges as the United States of America, it becomes necessary to attract into the ranks of the permanent university scholars and teachers considerable numbers of persons of more general gifts and interests, whom nature never intended to live for more than three or four years the life of the 'home of learning'. These introduce new problems and of course new values. But in Great Britain with its present universities there may well be enough 'natural' university scholars and teachers—that is, persons with the natural gifts and interests for the life of the university scholar, who under any reasonably well provided system will find that life more satisfying than any other way of life and work—to keep our universities flourishing, provided that we can find them all, and can make sure that they have full opportunity to give themselves the right education and training and to get themselves into the right places.

It has sometimes been thought that it is not necessary to teach young people of this sort, in any positive sense of the word, at all. All they should need is access to libraries and laboratories with occasional advice, as sought on occasion by themselves, from senior and more established scholars. Like everyone of course who devotes himself to an arduous and exacting pursuit, these young men will need social comfort and encouragement to sustain them in their disappointments and to fortify them in their devotion to study. But this they will gain in good measure from living with one another, and with their elders of like purpose with themselves, in the way of life of a university. But understanding and true knowledge come only to him who teaches himself; and libraries, laboratories and occasional self-sought advice and encouragement should be enough. For such people, it might be thought, the educational duty of a university is confined to welcoming them to its common life and giving them their opportunity.

Much of the practice of existing universities is still strongly grounded in this principle. For instance the 'tutorial system' as applied to the main schools of humane studies in Oxford still seems to base itself quite squarely upon it. Without doubt the Colleges, most of whose undergraduates read in the humanities, recognize that not all their young men and women are of the type of which we have been speaking—persons intended by nature to devote themselves permanently to the pure life of the intellect. But a great many of them are; and in regard to the rest, the Colleges may well still feel that these relatively non-intellectual young persons may have been sent to

the university, by parents or other responsible persons of good judgment, so that they may enjoy the benefits of living and working with the others, the natural intellectuals. Not all the titular 'scholars' are the one, nor all the titular 'commoners' the other; but it sufficiently clearly expresses the principle perhaps to say that the scholars gain the benefit of university life from living and working with one another, and the commoners from living and working with the scholars.

Expressed in this pure form, the principle may seem to have a certain intellectual or academic arrogance about it. The academic persons who make up universities may seem to be assuming that they are the salt of the earth, and that the greatest benefit that can come to a young man or a young woman is to be like them and to fit themselves to follow after them; and that even those who are not designed by nature for the academic life will be better—and will readily recognize themselves as likely to be the better—for behaving for three years to the best of their abilities as if they were other than they are. But after all universities exist to foster the life of the intellect and the pursuit of knowledge, and the pursuit of knowledge is a very high and exacting calling. It is the business of the university, however much individual university men and women may recognize the besetting temptation to intellectual pride, to believe in the intellect and in the intellectual life. And if this is all too consciously high-minded, at least there is no reference here to examinations, or to training in tricks of trade.

Actually of course, in a workaday world, things are not quite as simple as this even for universities. For one thing, even the most gifted and devoted young scholar needs more teaching than this; under the tutorial system in even the most austere colleges he rightly asks for more than occasional encouragement and advice. In the second place, experience has taught the universities that they have inescapable and most responsible duties to large numbers of young men and young women who have no pretensions to be purely or permanently academic in their interests and pursuits. Thirdly, universities and colleges cannot avoid a quite high degree of quasi-parental responsibility. This, the most difficult of the tasks of a university and the one by which at the bar of English opinion it is mainly judged, should be no more in evidence than can be helped; but only in periods of relative depravity and depression have universities or colleges sought to shut their eyes to it or to shirk it.

In other words the concept of 'education', education in the full

and proper sense, has found its way on to the stage, even for the universities: not just training for the future scholar or scientist; but education. As I have represented it, this intrusion of education has been almost against the grain with the universities. And I think this may be true. A great deal has been said, especially in the last half-century, about the pursuit of learning and teaching going hand in hand, being complementary to one another; and at a relatively superficial and pragmatic level there is a good deal to be said for this. The able young man of undergraduate age expects his professor or tutor to have some standing in his own right, apart from being his teacher. He expects him to be a person worthy of consideration in the world outside the class-room; and in a university this really means that he must have some esteem as a scholar, a scientific investigator, a thinker or a writer. On any other terms a university or college is no more than a finishing school in the accepted sense of the word. If the undergraduate is developing his powers very fast, as he certainly should in the course of nature be doing, and if he is rapidly and irrevocably making decisions and forming attitudes of mind which will shape his destiny, he needs to be working with older men who are more than pedagogues. He needs to be turning his hand to labour in a workshop which produces something else in esteem besides well-instructed young men. In all this the instinct of the university has been entirely sound.

But more fundamentally I am not sure that there is much in it. The teacher who is going to continue to teach for a long time may well need some other constant activity than teaching to keep his mind alive. This may not seem entirely necessary in early years, especially to those teachers who are fortunate enough to find great ability, independence of spirit and originality in their pupils. But eventually, even in such circumstances, and much more rapidly where the pupil-tutor relationship is less exciting, repetitiveness and the effort after lucidity of exposition rather than enterprise of thought must bring a certain lethargy of mind, which must blunt the edges of the true educational processes; and teaching and learning must become little more than a stoically endured weariness of the mind. Some activity of original and zestful enquiry is certainly necessary to the university teacher. But is the reverse equally true? Is teaching quite essential for the original enquirer? It sometimes seems doubtful whether the entirely dedicated man of research has willingly any mental energy to spare for teaching, or has by nature any lively

interest in the young at all. In fact, if the *ratio essendi* of universities has been to pursue knowledge, it would not seem to be altogether surprising if they had shown a certain reluctance to take on any very deep or broad responsibilities for education. Apprenticeship for future scholars, without doubt: but education of the intellectual cream of the nation's youth, certainly not. This latter might appear to them an entirely different matter.

Some sense of conflict between the concept of a 'home of learning' and the concept of an 'institution for the education of able young men and women' has shown itself in the development of the 'modern' universities. Not so much, in recent times, in Oxford and Cambridge, or I suppose in the Scottish universities. Since Jowett Oxford—it seems to me; I speak only for myself—has come to dedicate itself wholeheartedly to the proposition that it is the young men who matter. As the late Master of Balliol said in his last address to the College: 'I have been brought up in the faith that the young men *are* the College; and please God they always will be.' I think his predecessor would have said the same thing, and perhaps his predecessor before him. Perhaps the very able from among the younger generation of the nation are concentrated in the two universities of Oxford and Cambridge more than they are in any other great country; and the gathering of the talents which has been produced by this historical accident—if indeed the historian will allow it to be an accident—may have something to do with the tremendous part which is played in university life there by the young men and women themselves. But for whatever reason, I am not at all sure that a majority opinion of the dons of Oxford and Cambridge to-day would say without hesitation that the prime business of a university is the education of the young.

If they did, I make no doubt that for saying so they would come under strong criticism from most other English universities—as indeed they did from critics from abroad in the 1930's. Even the Americans who have spent so lavishly on colleges as homes of education, seem to be entrenching themselves of recent years in the Graduate Schools as the real universities.

It is not then surprising that there should be much misunderstanding of the universities by the general public. For there can be little doubt that public opinion, and probably Governments, and perhaps even the very great majority of 'university' men and women who have gone out into the great world after taking their degrees, think

of the universities as homes of education. The scientific departments of universities may be supported by industry, to the very small extent that they are in total supported by industry in this country, because of their work in the pursuit of new knowledge; but for the main part they are financed by Governments, to the immense extent that they are nowadays financed by Governments, for the part which it is conceived they alone can play in the education of the youth. And by education is *meant* education, and not just linguistic, or scientific or other special training.

Education is of course a very big word. It has commonly been accepted that in many respects education is all over by the time the child is about seven years old: what has been done by then can never thereafter be wiped out, or even in essence changed, and some opportunities which are missed in these early years are missed for ever. In some respects education is all over by the age of fifteen. The schoolmaster can only enable the sixth-form boy to build upon himself as he is when he comes into the sixth form. A boy may study or learn at seventeen what he might better have studied or learned at twelve or thirteen. But it is not the same educative act at the different ages; and the boy is not the same boy as he would have been.

Let us look at education from the point of view of the university; in other words let us look at the further education of the quite well educated young man or woman of eighteen or nineteen for the next three or four years. What is the undergraduate like? What does he want, and what does he need? What is going to happen to him in his undergraduate years?

If we are really concerned with education, and not with specific training, we must note that these are very important years. When we come to be middle-aged, as naturally many dons are, we may tend to think it makes little difference to a few years when a particular experience comes to us. If we marry late for instance, we may think it would make very little difference to us as persons whether we married at forty, at forty-five, or even at fifty. But even the middle-aged don can remember that it was bound to make an immense difference to him, years ago, whether one of the big experiences of his life, either of his intellectual or emotional life, came to him at eighteen, or at twenty-one, or twenty-two. Indeed, for some of the high experiences of his early manhood, if they had come too soon or too late, it would not be too much to say that they would not have come at all.

In its character as a home of education the university must ask itself the question which forces itself upon all educators: 'What can I do for the young in the years that they spend with me? What can they take from their school or college during exactly these years?' The answer must depend of course mainly on the state of development and of experience of the young at the age in question; and this may seem a simple issue. But there is always a complicating factor. The school or university must have looming over it the question: 'What is going to happen to the young man when he leaves us?' If the answer is, as it no doubt must be for most undergraduates, that when he leaves the university he will never again live in any society or community which remotely resembles the university, this answer brings with it serious implications. If when he leaves the university with his degree, he is likely never again to go into a library or laboratory, and is never likely to have the opportunity in his daily comings and goings of rubbing shoulders with persons who spend their lives in libraries and laboratories, the university must recognize that all the things that a university can do for the young man must, even to the last ounce, somehow be done for him in his undergraduate years. What in this field is not done for him in those three years will never be done at all.

If the circumstances are at all extreme, this gives to the university a quite stupendous responsibility. It must mean that of the things that a university can give, enough capital stock must be built into the mind and character of the young man to stand him in good stead for forty-five or fifty years of active life and work far from university influences. And surely for the great majority of university educated men and women with the world as it is to-day the circumstances *are* very extreme. How many of them are going to be able to give time and energy in the next thirty years of their lives to doing the things they could do when they were undergraduates? How many of them have the necessary facilities or the necessary friends and fellow intellectuals within call? Certainly fewer than in the past, and I should say very few indeed. Nearly everybody shortly after leaving the university puts his hand to at least two or three ploughs—the plough of his professional work, the plough of his family responsibilities, and the plough of 'leisure-time' public work of some kind—which will leave him no energy or opportunity for continuing to live more broadly the life of the intellect as it is, or as it should be, lived in universities.

APARTHEID IN THE SOUTH AFRICAN UNIVERSITIES

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THE Afrikaans word 'Apartheid' has, by now, almost qualified for a place in the Oxford Dictionary. Throughout the British Commonwealth politicians are prepared to take a stand for or against what they believe to be a general description of the Malan Government's policy. But it is to be doubted whether many of those who talk about 'apartheid' have a clear idea of what it means. This is to be expected since 'apartheid' is a slogan-word, which conceals rather than reveals the nature of the policy which it is supposed to describe. Literally it means 'separateness' (of the various racial groups). But since 'separateness' has always been the policy of the United Party in South Africa, it is difficult to see why the policy is so strongly associated with the name of Dr. Malan. The United Party bears full responsibility for the Lands Act confining African peasants to reserved areas. It was the United Party which segregated urban Africans by means of the Native Urban Areas Act, and the United Party which introduced the Native Representation Act putting African voters on a separate voter's roll. Finally, even though it is true that a Nationalist Government legalized the Industrial Colour Bar with the Mines and Works Amendment Act, the United Party accepted that Act when it was later returned to office.

Dr. Malan's Government, however, has carried the doctrine of separateness as far as possible towards its logical conclusion, and it is in this process that it has raised new issues of expediency and of morality. Among the most important nationalist measures already passed are:

1. The extension of segregation to the Cape Coloured and Indian communities.
2. Stricter measures to control the influx of Africans into towns.
3. The imposition of segregation in public buildings and transport where none previously existed.
4. The banning of mixed marriages.

In addition to these there are other measures which are in the process of being passed. They include:

1. The removal of the Cape Coloured voters from the common voters' roll.

2. The elimination of already segregated 'blackspots' in the middle of White occupied Urban areas.

3. The abolition of racially mixed Trade Unions.

4. The transfer of Native Education from the Provincial Authorities to the Native Affairs Department.

Thirdly, there are policies, which it is not at present proposed to implement by legislation, but which government propaganda aims to encourage independent bodies to carry out. Among the most important of these policies is the exclusion of black students from 'white universities'. The basic structure of segregation itself raises important moral and political issues, and much might be said of each of the Nationalist policies we have mentioned, but neither of these will be discussed here. The discussion will be confined to those apartheid measures which directly affect university education. They are in any case amongst the most important, because here at least the doctrine of 'apartheid' has to be challenged on moral grounds rather than on grounds of expediency and party advantage, which have loomed large in the discussion of other apartheid measures. The aim of this article is to show the extent to which separateness prevails already in the South African universities and to discuss the issues of principle, of concern to university people everywhere, raised by the Government's attempts to obtain a still greater measure of segregation. Apartheid applied to university education has two main aspects. These are, firstly the attempt to segregate students for residential, social and academic purposes, and secondly the provision of different sorts of education for students of different races.

We must begin with a factual survey of the existing university provision and the extent to which segregation is already imposed. South Africa has eight universities for full-time students, one university which provides only for external students and one college affiliated to but not a corporate member of one of the universities. There are four Afrikaans-speaking universities at Stellenbosch, Pretoria, Bloemfontein and Potchefstroom. None of these admits non-European students. The University of South Africa, having shed its various member colleges, as they each attained university status, now provides only external degrees, but examines and provides bilingual correspondence courses for students, regardless of race.

The four English-speaking universities are the University of the

Witwatersrand (at Johannesburg), the University of Capetown, the University of Natal (at Pietermaritzburg and Durban), and Rhodes University (at Grahamstown). The Fort Hare Native College (at Alice in the Eastern Cape Province) is affiliated to Rhodes University. It is in these universities that the degree of segregation is less strict, and it is they who are most concerned about the question of apartheid.

The Universities of the Witwatersrand and Capetown admit non-Europeans to all courses, but in both cases they are required to live in separate hostels. In 1947 there were 182 non-European students at Witwatersrand and 100 at Capetown, representing 4 and 2 per cent of their respective enrolments. The number, though limited by the high cost of university education, is rising.

The University of Natal has three colleges, two for Europeans in Durban and Pietermaritzburg, and one (Sastri College) for non-Europeans. In 1947 Sastri had 340 students, most of whom were Indians. Rhodes made some attempt to open her facilities to non-Europeans in 1947, before she obtained university status. A decision was taken to admit African post-graduate students and one was actually admitted. On her attainment of university status, however, Rhodes became an all-white university with an affiliated Native College at Fort Hare.

In 1947 there were just under a thousand non-European students receiving full-time university education. There was no full equality of opportunity for the different races, but on the other hand the African was not debarred from the best university facilities which the country could provide on grounds of race alone. Economic inequality between the races was the fundamental cause of the relatively small number of non-European university students. The effect of closing the doors of the Universities of the Witwatersrand and Capetown to African students, in accordance with the Government's wishes, would be to introduce a serious element of inequality, since Fort Hare and Sastri cannot as yet provide the same range of courses or standards of tuition as the larger universities can.

But the issues raised by the apartheid question go beyond that of equality of educational opportunity. In the first place, a university which excludes certain sections of the community is likely to be a poorer place as the result of the exclusion. The effect of studying together on white and black students alike is undoubtedly a healthy one, both for the students themselves and for their country. Prejudiced

minds cannot attain that freedom of thought which is so vitally necessary for a university student. The experience of many of the best students in the mixed universities suggests that release from race prejudice means the release of a student's full intellectual powers, and a new vision of the social purpose of education. Moreover, one felt very strongly in the period following the war that something very valuable for South Africa was happening as black and white students began to find that a common intellectual interest was a more important social bond than pigmentation.

These benefits of mixed education were to be seen most clearly at Witwatersrand and Capetown. At both universities non-European students have been elected to the Student Representative Council, and there is surely no finer interracial action on record in South Africa than that of the white Witwatersrand students, who, when the Government stopped giving State Scholarships to African medical students at their university, imposed a levy on themselves to continue the scholarship.

But the Universities of Natal and Rhodes are not entirely lacking in this liberal atmosphere either. Inter-college activities such as debates and symposia on social questions, and even an occasional sports meeting, help to bridge the gap created by separate teaching. Rhodes had particularly valuable opportunities of arranging meetings with African students and staff at Fort Hare, who undoubtedly will continue to provide the black population of Southern Africa with their leaders as they have done in the past. In the period after the war dozens of Rhodes students made valuable contacts with leading black South Africans like Professor Matthews and Jabavu, with men like Samkange and Hlabangana, who were to become acknowledged African leaders in Southern Rhodesia, or Manoah Chirwa, who was to represent Nyasaland in the Federal Legislature of Central Africa. It is difficult to overestimate the effect on future racial co-operation of meetings like these.

One of the principal agencies encouraging this co-operation between students was the National Union of South African Students. NUSAS, as it is familiarly known, worked hard and usually with considerable political commonsense to keep open the channels of interracial co-operation by bringing all students into one organization where common academic problems could be discussed. Unfortunately, the affiliation of Fort Hare and Sastri led to the refusal of the Afrikaans universities to join. NUSAS wisely kept out of politics, and

even went so far as to ban interracial socials and dances in areas where these conflicted with local custom. It did this in the belief that more valuable work could be done by encouraging students of different races to meet and discuss their subjects of study. Thus it became something of a university in itself, rather than a humdrum students' trade union. Its greatest achievement, perhaps, was an interracial research expedition to a village in a Native reserve by senior students from different faculties and different universities. There future doctors, architects, sociologists, economists, educationalists and agriculturalists were able to grasp the social purpose of their studies and to realize that their common vocation was a bridge between racial differences.

NUSAS is attacked from many sides. It is a natural target for attack by those who are opposed to interracial co-operation. The leaders of the Nationalist Party have long demanded that it should be banned, but as yet nothing has been done to implement this. Secondly, it finds itself attacked by African nationalists, and tragically enough, the Fort Hare students withdrew from the Union in 1950, owing to its refusal to engage in political agitation. Thirdly, it is attacked by the more timid members of university senates who fear that its interracial activities may lead to Government action against the universities.

The presence of black students at two English-speaking universities, and the interracial co-operation that goes on in all of them and in NUSAS, are the main targets at which Government criticism is directed. On the first question the governing bodies of Witwatersrand and Capetown have taken a firm, though not unanimous, stand. On the second question the authorities at the Universities of the Witwatersrand, Natal and Rhodes, at least, have shown signs of wanting to discourage mixing wherever possible. No one should underrate the difficulties with which they are faced, or imagine that the heads of these universities are not liberal-minded men. But they fear that, if the Government is provoked by continued examples of intermixing, the consequences for the universities might be very serious indeed. For important though the advantages of contact between university students of different races may be, a still greater danger lies in Government control of the universities.

There are on record many statements by leading supporters and allies of the Nationalist Party which suggest that the ultimate direction of Nationalist policy will be towards a corporate state on the

Fascist model. In fairness it should be said that Dr. Malan himself does not support such plans, but if extremists within the Nationalist Party were to try to put them into effect, then the universities, like the trade unions, would be converted into mere agencies of the State and the 'Volkswil'.

There is a real danger that, with this threat in mind, the universities will adopt a policy of appeasement towards the Government. Dr. Davey, the Principal of Capetown, was surely right in opposing the exclusion of non-European students, on the ground that to do so would be to admit the right of the Government to interfere in the internal affairs of the universities. Instead of buying off the Government, appeasement on the apartheid issue might lead to even greater interference. The apartheid question could easily be the first round in a long battle between the State and the universities, and in this battle the universities cannot afford to make concessions at all.

But there is an even more fundamental danger to the universities, arising from the attempt to provide a different sort of education for Africans at the lower levels. To put this in its proper perspective it is necessary to say something of the doctrine of Christian National Education, expounded by some Afrikaans professors, particularly at Potchefstroom, which is largely a religious seminary.

The fundamental point made by these theorists is that God calls each nation to a particular destiny. This is a perversion of the Calvinist view of a 'calling', but once it is granted, it is said to follow that each nation, race or linguistic group should receive an education appropriate to its divinely appointed purpose. No universal system of education can provide for this need in a mixed community, like that of South Africa. Therefore there must be Jewish education, English education, Afrikaner education, and so on. The doctrine draws force from the fact that the Afrikaans community have always felt quite rightly that textbooks in subjects like history tended to be biased against the Afrikaans people, and also from the protests of religious fundamentalists common in Afrikaner religious traditions against the teaching of modern science.

But where does the African figure in the schemes of the Christian National educationalists? The answer is equivocal. On the one hand he must be educated in accordance with the calling to which God has assigned him, but on the other the missionary spirit of Christianity demanded his conversion to Christianity. His education must there-

fore take place under European guidance and in particular under the guidance of the Boer nation.

This doctrine has for some time been taken quite seriously by the Transvaal Provincial Council. Meanwhile the Government, which is not directly responsible for education, has been working on parallel lines, at least as far as the education of the African is concerned. Nationalists have always held that the African should not be turned into 'a second-rate European' but should be educated 'along his own lines'. In 1948 the Government appointed a commission to determine what exactly these lines were. The Commission has reported, and, as a consequence, the Government has transferred responsibility for African education from the Provincial authorities to the Native Affairs Department. The aim of this new authority will not be to increase the number of African children in schools, but to change the nature of the education provided. It appears that the standard of ordinary education provided will be very low indeed, and that thereafter emphasis will be on practical subjects. At present the new authority is attempting to buy out some of the missions in order to implement this policy fully.

From these trends two dangers for the universities arise. One is that the supply of African students will be cut off at its source. The other is that, by direct Government intervention, or by infiltration, the doctrine of Christian National education may get a hold on the universities, other than Potchefstroom where it has a hold already. University people in South Africa are well aware of the second danger and much good counter-propaganda work has been done. As to the first danger, it remains to be seen whether the policy can be implemented. There can be little doubt that African teachers, missionaries and university lecturers and students will do all that they can to see that African education is carried on. But they may need financial assistance from overseas if this proves necessary.

We may then summarize the principal points of the challenge which the apartheid ideology makes to the universities. In the first place, it challenges the view that education is a single process involving a search after truth. Secondly, it challenges the view that universities should be able to choose their students on academic grounds, free from outside interference. Thirdly, it seeks to inhibit the free interchange of experience and information between students and, finally, it seeks to limit educational opportunities for one section of the community.

All that university people overseas are in a position to do for the South African universities in this situation is to advise, encourage and warn. But part of advising consists in giving an example. An example of a truly interracial university can be provided in Central Africa. The future of this new university is not yet fully decided. It has been said that it will be truly interracial. But what interracial means has given rise to argument. In view of the dangers of compromise on this question it would be well if the view of the African members of the Federal legislature of Central Africa were given due weight. One of them writes:

> The students of the University should study under the same roof, eat, play and sleep under the same roof. Any form of discrimination would not be acceptable to the people we represent, would not give enough opportunity to the young generation of growing up without a false sense of superiority, and would undermine the spirit of the federal constitution . . . lecturers and professors should be drawn from all races and should receive equal pay for equal work.

In demanding common hostels, this goes further than the example of the Universities of the Witwatersrand and of Capetown, but there is no doubt that the existence of the additional opportunities provided by a common place of eating and sleeping would help to carry even further the process of co-operation which they exemplify. Those who are concerned about the dangers of apartheid to university life in general should watch this experiment carefully and see that it provides an alternative way of dealing with the problems of the university in a mixed society.

THE SWISS FEDERAL SCHOOL OF TECHNOLOGY. I

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In the course of some recent visits I was permitted to make to the seven universities of Switzerland, a curiosity of long standing about the Federal Institute could not be suppressed, once I had alighted at the Hauptbahn in the heart of Zurich. On a suburban slope not too high above the Limmat my glance had caught the famous façade by Semper, flanked—outflanked perhaps—by the domed elevation of the cantonal University. But what excuse could an Arts man find for climbing that slope with the intention of 'interviewing' so formidable a centre of scientific teaching and research? An excuse seemed offered by the courses in general education which, I had been told, constitute a regular extension of the School's specific curriculum. What kind of balance was being kept between Engineering and education? A prominent question in Britain to-day, it had occupied the thoughts of the founders of the Federal Institute, who had reached, if not a solution, at least an arrangement by which something of the breadth and grace of Arts could be added to the lustre of an intensive scientific *enseignement*. Such a question would be enough to occupy a visitor, along with the attractions of the buildings themselves, their high interiors supported by tiers of arcading, their ground-floors stocked with polished equipment or scrupulously preserved specimens, drawing the eye along orderly vistas of mechanical or naturalistic forms.

A call at the *Chancellerie* opened a new range of possibilities. After instructions from the Secretary, I was launched on a tour of the School, its libraries, museums and laboratories, in the charge of an assistant who dispensed information as he shared the armful of literature with which I had left the office. To this documentation I will turn at once, as it may help to answer a still more pertinent question than that of the education of engineers. In view of the prevalent discussions of national productivity and of its relation to technological training, it may be worth attempting to discover how the 'aims and policy' of the Swiss Federal Institute of Technology were defined by its founders and defended by the promoters of its subsequent reputation and success.

From the Commemorative handbook published for the 75th anniversary of the Institute,[1] it appears that the federal law of 1854, which created the School, prescribed that the studies for which it was founded should be of a theoretical nature, pursued as far as possible in practical directions ('de nature théorique et autant que possible de sens pratique'). It is claimed in the same publication that this definition of the teaching aim was still being observed.

If now we refer to the *Réglement de l'Ecole politechnique fédérale* of the 16th April 1924, we shall see that the Federal Council defined by decree the function of the School in terms which may be translated thus: 'The object of the School, in conformity with the law that created it, is to provide the necessary scientific knowledge for those persons who aim either at technical careers or at teaching the mathematical and natural sciences; in addition to which the school shall devote all its attention to general education and to scientific research' ('. . . elle voue tous ses soins à la culture générale et aux recherches scientifiques.') The second Article reads thus: 'The teaching in all departments must never lose sight of the particular needs of Switzerland.'

Next let us open the students' handbook of 1940 in its official English version. The introduction begins with these words: 'The Swiss Federal Institute of Technology aims at giving its students a scientific and professional training such as will fit them to take responsible posts as scientists, engineers, chemists, architects, agriculturalists and pharmacists. . . . From its foundation it was intended to be the leading institute for technical training and the only technical school of university standing in the country.'

Professor Arnold Toynbee recently defined 'technology' as 'only a long Greek name for a bag of tools'. It would be interesting to have his definition of the word 'technical'.[2] The *Réglement* of 1924 con-

[1] *Ecole Polytechnique Fédérale—Son Enseignement et ses Instituts.* Orell Fussli, Zurich. 1930 (?) I refer to this as the 'Commemorative handbook'. Verbal permission was given to quote from all documents received from the Registry.

[2] A science colleague comments: The emergence of the word, 'technology', mainly in the last thirty to forty years, does involve some change in general conceptions in the field, but is mostly a development in terminology. If Toynbee had really looked at a modern industrial plant—such as those in the Petroleum industry or one of the major I.C.I. divisions—he might have kept more closely to his Greek. Some 'bag of tools'! It seems to me that it is this increase in the scale and complexity of processes which has led to an extension of nomenclature. The Technical Schools or Mechanics Institutes began by educating technicians—those skilled in the practical arts, craftsmen, skilled artisans. I see that Technologists are defined as 'skilled in the systematic knowledge of the industrial arts', or 'in the science of the industrial arts'. An institution claiming university rank cannot *aim* at producing technicians, but must be concerned with the principles which

tains no word corresponding in form to 'technological'; while in the English version of the 1940 handbook this word appears in the title of the 'Institute' and alternates with 'technical', as in the paragraph quoted above. In the current *Short Guide* to Swiss universities, published by the National Tourist Office, Zurich, the language describing the function of the School has undergone a significant change. The word 'technical' has entirely disappeared from the English edition, and we read: 'From the very beginning it was meant to be the highest establishment in the country for technological studies and was intended to serve for teaching and research in technology and in the subjects on which these studies are based.'

No doubt developments underlie this change in terminology; though it cannot imply a change of the same magnitude as that indicated in a phrase used of the Manchester College of Technology in 1923, when it was said: 'Within a generation we have seen the small Mechanics' Institute in a provincial city develop to an institute of university standing, constituting a technological faculty.'[1]

The most convenient account of the work of the School I found in the English handbook of 1940, from which it may be worth reproducing the following paragraphs:

'Since its foundation, the Swiss Federal Institute of Technology has considered it its duty to give its students a thorough scientific education combined with practical training. While in all sections the first two years are mainly devoted to the study of fundamental sciences, the last two years deal chiefly with practical applications and professional training; this part of the work is supported by the steady personal intercourse of professors and students in the lecture-rooms and laboratories and on excursions. The object of the Institute is to give the students such training as will qualify them for independent work and it is certainly justified in saying that it has successfully realized this aim, as its former students are known and recognized for their attainments not only in Switzerland, but in all civilized countries. Switzerland has achieved a high reputation as an industrial country; its mountain roads and bridges, its electrified railways and hydro-electric power stations, its engineering, electrical,

lie behind practice and the education of those who will be effective with wider responsibilities. The Federal Institute was presumably after the '—ology' from the beginning, but the word does not seem to have been in general use. 'Technology' is not in the index to the 1903 *Encyclopaedia Brittanica*, although there is plenty about technical education.

[1] *Manchester Municipal College of Technology.* Jubilee 1902–52.

textile and chemical industries stand witness to the technical ability of the population and deserve so much the more praise as the country is practically devoid of raw materials. It is universally admitted that these remarkable achievements are to a considerable extent due, directly or indirectly, to the Swiss Federal Institute of Technology.

'Throughout the Institute a harmonious combination of teaching and practical work is envisaged as the most efficient way of training future engineers. This aim is realized to a great extent by the combination of lectures, seminars, computation, designing and laboratory work. Thus the student will have an opportunity of improving the knowledge he has gained in the lectures, by discussion and by the practical application of all he has learned in designing or laboratory experiments. Professors and assistants help the students individually, reserving a great deal of time for personal attention to them.

'This method, which has been characteristic of the Swiss Federal Institute of Technology since its foundation, has proved efficient and is certainly responsible to a great extent for the success of the Institute in the training of engineers, architects and other graduates.

'It has always been a privilege of the Institute to be on friendly terms with industrial and agricultural circles, the leading members of which are to a great extent former students of the Institute, while a considerable proportion of the Institute's staff have spent a number of years in business.

'The development of the Institute from a mainly educational centre to a scientific research institution made it imperative to adapt the existing laboratories to its new purposes and to add new ones. Thus the buildings of the Institute have been steadily growing and improving, development having been particularly speedy in the last ten years. The Institute now comprises ten different buildings, beautifully situated in a hilly, though central, part of Zurich. Some sections, devoted to agriculture, forestry and meteorology, have their research and experimental stations and grounds outside the town. It will be seen by their modern style that several buildings of the Institute are of recent date.'

The School comprises twelve departments: Architecture, Civil Engineering, Mechanical and Electrical Engineering, Chemistry, Pharmacy, Forestry, Agriculture, Rural Engineering and Surveying, Mathematical and Physical Sciences, Military Science. The twelfth is a department of General Education which provides courses in cultural subjects. To this we shall attend later.

A glance at the description of one or two of these departments will show the relation between the theoretical and the practical, of whose successful interadjustments the Institute is proud.

'The school of Civil Engineering includes four main sections: steel and structures, concrete engineering, railway and highway-engineering, hydraulic engineering. Students will be trained in all these subjects, but in the upper classes they will usually make one of these lines their speciality.

'The standard course is four years. The first two years are mainly reserved for preparatory subjects, such as mathematics, physics, descriptive geometry, mechanics, geology, chemistry, testing materials; surveying, theory of structure and structural design are the only practical[1] subjects whose elements are dealt with in the curricula of the first two years.

'In accordance with this scheme, the third and the fourth year deal mainly with civil engineering subjects, introducing the students to practical work; there are at the same time additional lectures on law, national economy, technical management, hygiene.

'The separation between the four sections mentioned above place in the third year, the fourth year being devoted to specialization in the section chosen. The separation, however, is not very pronounced and students receive a good training in the other sections as well.

'Theoretical training is completed by practical work. All kinds of calculations and exercises in design are carried out. Moreover, geodetic surveying is practised in a course of field work lasting several weeks.

'Material tests, made by the students themselves, geological and general excursions, all kinds of hydraulic tests—to mention only the most important—introduce students to the practical side of their profession.

'In the last six months' term, students are given full freedom in the choice of the subjects to which they wish to devote special attention, theoretical and practical, before entering for their final examination.

'The diploma thesis must deal with a subject such as bridge-designing, railway or highway planning or hydraulic engineering, which the candidate is required to prepare carefully and completely without other help than his professor's guidance.

'To receive a doctor's degree, students may carry through a com-

[1] The word 'engineering' might convey the sense better here.

plete scientific investigation of any subject in civil engineering, either in one of the laboratories of the school—hydraulic, soil mechanics, material testing, structures and statistics laboratories—or in outside work.

'Besides the above-mentioned laboratories, the school of civil engineering possesses extensive collections of materials for demonstration, such as slides, models, plans, etc., which are utilized to assist the students.'

From the account of the School of Mechanical and Electrical Engineering I select the following paragraphs:

'The purpose of this school is to give the students a thorough training in mechanical and electrical engineering; with the object of making the training as general as possible, the separation of mechanical from electrical engineering is intentionally postponed until the third year.

'The first two years are mainly reserved for preparatory theoretical subjects, such as mathematics, descriptive geometry, physics, mechanics, chemistry, applied mechanics, hydraulics and thermodynamics, engineering materials. Students are introduced to practical work in machine-drawing and fundamental machine-designing.

'Mechanical and electrical engineering students take the second part of the course separately; in both cases professional education and practical training will be the main object.

'Mechanical engineering has become so broad a subject, including hydraulic and textile machinery, heat, refrigerating and aeronautical engineering, power stations and industrial management, that students cannot possibly take all the lecture courses; they attend only the introductory lectures on all these sections and are then free to choose the special subjects which they will study in detail. In these subjects, their training will be quite general, the lectures being supplemented by practical work in the laboratories and by designing and calculations. The proportion of theoretical study to practical training is adapted in every case to the character of the subject. Part of the training may be carried through in factories and engineering works.

'The main subjects of the electrical engineering section are: principles of electrical engineering, electrical engineering laboratory work, direct and alternating current machinery, power stations and electric power distribution, telephone engineering, high-voltage engineering, radio communication and high-frequency engineering. Students are trained in all subjects; in the last year, however, they may devote

most of their time to the subject in which they choose to specialize.'[1]

As for the School of Chemistry, 'this school adheres to strictly scientific lines, avoiding as far as possible any specialization. Students are expected to make their own way soon after they join the staff of a chemical concern. With a good general training on an excellent scientific basis, they ought to be able to apply to practical purposes all the chemical knowledge they possess.'

In the commemorative handbook this school was differently described. Originally named 'School of Industrial Chemistry', (I translate from the French edition), 'it is designed to give a scientific training to chemists who aim at the study of problems of industrial chemistry; it leads thereto by a scientific training which, though diverse and complete, does not go so far as being too pronounced a specialization. . . . Instruction in industrial chemistry begins in the third semester.'

It is obvious that the Institute devotes much of its time and attention to the training of undergraduates in the fundamentals of the sciences and that theoretical initiations are not sacrificed to immediate practical applications. On the contrary, strenuous efforts have been made to avoid the 'obstacles of premature specialization'. Nowhere is this clearer than in the description of the department of Mathematics and Physics which are defined as 'écoles normales', i.e. schools designed for the training of teachers. The official description indicates that this is only one aspect of the work of the department and reads: 'Students attending this school take up mathematics or physics in order to become scientists, teachers or professors, as the case may be. The training makes students familiar not only with classical science, but also with the objects of the latest research and with the most recent developments. It is intended to provide a thorough general scientific education.'

Candidates are admitted to the Institute at an age not earlier than eighteen on the strength of a certificate (*la maturité*) which corresponds to our general entrance qualifications, though probably of a higher standard. The duration of courses varies from three and a half to four years.

To be concluded.

[1] The contemporary prospectus of the School contains a note to this effect: 'Candidates entering on their first semester in the sections of Mechanical and Electrical engineering must certify to having had practical experience in a workshop of nine months' duration.' Students of Swiss nationality are allowed to do three months of this period during their studies; foreign students must have completed it before they begin. *Dispositions Générales et Plans d'Etudes*. April 1947.

ISTANBUL UNIVERSITY

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WHEN the Turks last summer celebrated the half-millenary of their capture of Istanbul from the Byzantines, they did not omit to commemorate also the half-millenary of Turkish higher education in the city—or, as they prefer to put it (and it is perhaps only a question of terminology), the half-millenary of Istanbul University.

The victor of 1453, the twenty-three-year-old Sultan Mehmet II, 'Mahomet the Conqueror', came of a people which had already established notable educational centres at Konya (the Iconium of St. Paul) and elsewhere in Anatolia, not to speak of other foundations made by their kinsfolk much farther afield, at Bokhara, Khiva and Samarkand. Soon after the capture of Istanbul the first Turkish lecture-programmes in the city were inaugurated. At first some of this instruction took place in the very centre of the former Byzantine state, the church of Holy Wisdom (Aya Sofya). Already it was converted into a mosque, at which the Conqueror had led the first prayers—now, when Islam too has ceased to be the established church, it is a museum.

In 1470 new premises were ready. These were based on the 'medreses'—'college-buildings', Seton Lloyd calls them, 'with their quiet "quads" overlooked by the windows of the students' quarters, very close in atmosphere to our own universities'. The Sultan built sixteen 'medreses' at Istanbul, complete with dining-halls, reception rooms, sanatorium, visitors' hostel and elementary school. The 'medrese' was primarily theological, and the conquest of this city had been a sacred ambition of Moslems since the days of the Prophet —'happy the prince, happy the army, who shall accomplish this'. Yet teaching included not only theology and law, but also medicine and mathematics; and the monarch set an international tone by inviting distinguished foreigners to join in the instruction of these subjects.

Mehmet's military victories—and the twenty-eight years of his life after the fall of Istanbul saw increasingly savage warfare—make the West forget his intellectual stature. This was the man who, despite the Moslem ban on images, saw fit to commission his portrait from Venice—the man who once bade Ragusa pay its tribute in Italian manuscripts. Indeed, he had something in common with the cultured potentates of the Italian Renaissance, of whom he knew from one of its exponents, Ciriaco of Ancona. Nor was that other Western

tradition, the Greek one which he overthrew, alien to him. Though 'the whole Greek world went into mourning', says Steven Runciman —and Byzantine learning was gone and dispersed—'he had Greek friends, Greeks in his court and government; he was himself by birth largely Greek'. Like emperors of Rome before him, he 'freed' Athens; and, to replace the slaughtered Greeks of the new capital, he brought in others, making them into a self-governing 'nation' which did not wholly lose substance until the empire itself declined.

Yet the culture of this immensely able but terrible young man was Islamic. He was the heir to the sophisticated spell of the Seljuk tradition, so brilliantly represented to-day by largely unvisited (and unphotographed) masterpieces in and around Anatolia. And he inherited, too, much from farther east; he was a poet, and his poetry breathes a breath of Persia, which, in these latter days, Turkish purists have sought to remove from the language. The learned themes which most interested him were geography, history, philosophy and mathematics—and also astronomy, for which he constructed an observatory. He set limits to the State's interference in higher education. True, its administrators were chosen by him, but once they were chosen they and the teachers enjoyed a considerable status. The Sultan's care to maintain the forms is illustrated by the story that he himself was not allowed to occupy a room at one of the 'medreses' until he had passed an examination. What a distinction it would have been to 'plough' the Conqueror!

Then, in 1555, Suleiman the Magnificent—whom the Turks prefer to call 'the Lawgiver'—founded a fresh group of 'medreses' round the great mosque that bears his name, with rich libraries in three Islamic literatures. But the subsequent decay of the Ottoman Empire brought with it the restriction of learning to mediocre work in theology and law. However, before the present century, two further important developments had occurred. One was the gradual creation of an engineering department, the heir to a school of geometricians founded by Suleiman. Some two hundred years later, in spite of sanguinary opposition by the Janissaries, who saw their predominance threatened, successive Sultans encouraged the establishment of institutes of Military Engineering. These were short-lived, but finally, in 1795, an Imperial foundation took shape. It had naval and ordnance branches; and in 1884, after preliminary steps, a school of civil engineering was added. These developments have led to the creation (British people find the terminology confusing) of an

'Engineering High School' (1934), which in its turn has been converted into the 'Technical University of Istanbul', created in 1944—it is quite separate from Istanbul University—and comprising Faculties of Civil Engineering, Architecture, Applied Mechanics and Electricity. Engineering degrees are also given at the American Robert College.

The second important development between the sixteenth and twentieth centuries has concerned medicine. In 1827 Mahmud II—destroyer of the Janissaries—opened Schools of Medicine and Surgery, equipped with Turkish, Greek and Armenian teachers; the conferment of Doctors' degrees soon followed. French became the language of instruction (as at the Galatasaray Lycée, doyen of Turkish schools), until—after vigorous controversy—Turkish replaced it in 1864.

The next decades saw many changes, but at the turn of the century a major development occurred in higher education as a whole. The previous decades had already witnessed attempts to supersede the now antiquated 'medrese' system by a university based on European models, but the Moslem hierarchy had ensured its failure. In 1900 a fresh attempt was made, and it was from that date that the modern University begins—though at first it was only a shadow of its present self. Eight years after its foundation it established control over the Medical School and also over a hitherto independent Law School. Now a Faculty of Economics, too, has been added. The Faculties were still called 'medreses' until 1924; since then the Western term has prevailed, and the designation of 'University' replaced a Turkish, or rather Arabic, name in 1933.

The relations of the University—and already of the ten-year-old Ankara University—to the State have had numerous vicissitudes. Finally a law of 1946, respecting the intentions of the fifteenth-century founder, gave the universities what is described as 'a very large administrative and scientific independence as well as financial autonomy'. But of course they derive most of their funds from the State; and they are still moving towards a suitable formula which will reconcile this dependence with autonomy. Turks are very interested to hear of our University Grants Committee. But, like any other institution, it would probably not be exportable in its present form. Perhaps already a variant appropriate to the Turks' needs exists in the shape of their Inter-University Council, comprising representatives of the three universities. The Minister of Education is

in the Chair, and through him the Government 'exercises general control'—but he has no power of veto, and the 'decisions of the Council are final'.

Meanwhile extensive provision has been made for building programmes. For instance in 1942 a large part of the Faculty of Science was destroyed by fire; a great new building has now been practically completed for its 2,500 students. Generous construction, like autonomy, is in the tradition of the founder; and so is the University's determination, in spite of opposition, to attract scholars—at least for the time being—from other countries. French influence has made important contributions. In 1933 many distinguished German emigrés were given Chairs; many of them have still preferred to remain in Istanbul. In 1940 the Turks announced their desire to extend their search for professors to Britain; and when I arrived in Turkey as the first British Council representative my orders from the late Lord Lloyd were to try to help them to find the men they wanted. In 1945, in addition to Chairs occupied at Ankara, there were nine British professors at Istanbul University, teaching Astronomy, Byzantine History and Art, Classical and Comparative Philology, English Literature, Gynaecology and Obstetrics, Mathematics, Physical Chemistry and Physics. British universities and the limitation of the British Council's assistance—here coming at a cruelly premature moment—have taken their toll. But British participation at Istanbul is still assured by Professors C. E. Bazell (Comparative Philology), G. E. Bean (Classics) and F. H. Constable (Physical Chemistry); and J. Curgenven has recently been appointed to the Chair of English Literature.

These men, and Professor E. V. Gatenby who directs the training of teachers of English at Ankara, have the challenging task of bridging the gulf between two remote tongues (though English is now a Turk's second language), and two variously rooted cultures. But the problem is made easier because Turks and British seem to have a natural tendency to get on well with each other.

As in other ancient centres of learning—Salamanca is a conspicuous example—the history of higher education at Istanbul has not been smooth or continuous. But it has had noble epochs and it has helped to produce a remarkable nation: and it has revived and advanced with great rapidity under Atatürk and his two successors, Inönü and Bayar. Those of us who have had close relations with Istanbul University have many happy memories of them.

SOME IDEAS ON TECHNOLOGICAL EDUCATION

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It can hardly be a mere coincidence that recent years have in several countries brought frequent and lively discussions on technological education. American engineering journals as well as British[1] and Dutch periodicals have published articles dealing with such problems as: 1. The requirements of national economic life as to quantities and qualities of people with some form of technical education. 2. How to provide these forms of education. 3. How to promote the required enrolments and graduations. I admit that the explanation of this widely spread interest in these problems deserves less attention than an attempt at solving the problems themselves. Nevertheless, I venture to suggest at least a partial explanation; for this explanation may have to be taken into account when one is dealing with the problems themselves. One reason appears to me the lesson learned during and after World War II: that technical ability is an all-important asset in wartime and in times of peace. Even people who attach more value to culture than to material welfare must admit that our impoverished world had to look to technology for its rescue. It was not at all unusual to hear science and engineering being appealed to for miracles and blamed for materialistic influence.

In the wish to have as many first-class miracle-workers as possible —and that at short notice—public opinion persuaded many young people to choose an industrial career. Technical education having to cope with suddenly increased enrolments of—very often—less well-prepared students, had to devise new methods; and what was more natural than that teachers should have found fault with their own previous practice?

There are other reasons for this universal interest. One, certainly, is the rapid development of technical science in many fields, such as electronics, power, nuclear physics. It soon became clear that further specialization was unavoidable and this gave new importance to the old controversy between 'broad' education on the one side and 'deep' studies in a narrower field on the other.

It is easily understood that educators did not wish to sacrifice part of the 'universal' education they were proud to give. Most of the

[1] e.g. *Nature*, 1953. March 28 (p. 533), April 4 (p. 581) and May 30 (pp. 962–4).

discussions referred to will be found to have originated in an effort to *combine* universality with special ability. As such a combination (especially when society wishes to have graduates doing practical work at an early age) can only be mastered by exceptionally gifted individuals, these efforts often prove to be fruitless. One has to give in and to accept *teams* where formerly *individuals* could do the job. But this does not imply that for *all* tasks the highly specialized (and so less universally educated) man is required. On the contrary, there are many important places in industry where a broad technical, social and economic training will have preference.

This consideration brings me to the central problem of the great variety of tasks expected of 'technically educated' men.

What then are the various kinds of task to be distinguished? Quite apart from differences such as mechanical, chemical, electrical, mining, etc., there are far more deeply rooted *functional* differences. Design, production, maintenance, purchasing, selling, management, can all be a main function. In every one of these fields one may moreover distinguish between the application of available knowledge and the search for new knowledge, the research.

It would be bewildering if one type of education were suitable for functions so widely different. As long ago as 1923, Mr. Edward Bennett in the U.S.A.[1] proposed to differentiate technical education at an early stage along these dividing lines. But for several reasons one should endeavour to postpone any differentiation in education till the latest date, i.e. till the time when practical considerations make the separation unavoidable. One of these reasons is that it is not always possible to find out which kind of function will in future be most suitable for a young student; another reason is that daily contacts should not be confined to students with exactly the same interest, but should be as broad, diversified and general as possible. A third reason is simply the higher cost of completely separated courses.[2]

In the light of the above one should first plan the best course to follow for every separate function in every separate profession and

[1] Engineering courses for the functional rather than the industrial divisions of engineering. *Proceedings Soc. Promotion Eng. Education*, Vol. 31, 1923.

[2] One of the consequences of this reasoning would be, that technical education in the atmosphere of a general university is to be preferred over such an education in a completely specialized institution. And indeed, in adopting an entirely separate 'technical university' (a misnomer, because it *lacks* universality) for certain other reasons, one sacrifices important advantages.

then find a suitable compromise between the various courses for as long a part of the education as possible.

It is clear that differentiation will have to be accepted to an increasing degree as the student proceeds through his period of education. And more differentiation will be unavoidable as the man pursues his career. But let educators resist the temptation to provide industry with ready-made specialists whenever an employer should repeat the words of Mr. Potter that 'a freshly graduated engineer after learning everything in school still has to learn everything in practice'.

It certainly is a very difficult task to design a system of technical education, which on the one hand offers as many students as possible the opportunity to choose and follow the directions suited to their characters and abilities and—when the further journey would become too difficult for him—to leave with an adequate training to do a good job in practice, his fellow-passengers travelling on to a further goal, and on the other combines to a great extent the education of students who will later on have to go different ways.

These two requirements always lead to a compromise and—as in every case where a compromise is indicated—opinions are apt to differ about the right balance between the two extreme possibilities.

Practical solutions have been in existence for several years and in many cases the results deserve full appreciation. I mention the Massachusetts Institute of Technology of which the Bachelor Degree (in many variations) has proved to be of great practical importance for industry, to be within the capacity of a sufficient number of young men willing to use their talents and at the same time to be an adequate platform from which the higher degree of Master can be acquired by those who have the gifts and the guts for this study; the Ph.D., attainable for the few, does not require a basic training different from the B.Sc. and the M.Sc.

A different solution (which may however be combined with the above) is the co-operative system, introduced years ago by Dean Schneider in Cincinnati, known also under the name of the 'sandwich' system. Alternating periods of study in the university and of practical work in industry give the young man a frequent check on where he would most fittingly find his future task and also bring him in *touch* with social problems without any purposeful introduction of these problems into the curriculum. Something of the kind has

gradually been introduced in several places and also in the education of production-engineers in Holland.

An essential point in building up a system which heeds both requirements, consists in the serious consideration whether every subject one purposes to introduce into the curriculum really belongs there. As a matter of course such a subject would not even be under discussion if one did not attach a certain importance to it; but not everything of importance *must* of necessity be packed into a curriculum. Something should be left to subsequent education (and self-education) in practice. The drawing up of any curriculum shows an analogy with the packing of one's suitcases on the eve of a holiday—one should not try to put in everything which 'might come in handy'; on the contrary, the trick consists in finding out which 'necessary' things may really be left out to make the journey easier.

But I did not go so far as to suppose that important subjects should be sacrificed to the adaptibility of a system of technical education. My point is that a student may well take an interest in a subject which is not explicitly catalogued in his curriculum but the importance of which is reflected in the lectures, the private talks, the exercises issuing from one or more of his technical teachers. And as soon as the student's interest has been awakened, he will find a way to study such a subject during his education or at least to become better acquainted with it.

The long and the short of all this is, that simplification of curricula facilitates postponement of much specialization and that such a simplification may well justify the cutting out of certain subjects, provided well-qualified teachers (of other subjects) know how to spotlight the importance of these matters. This conclusion implies that the technical teachers in charge of the earlier stages of the education should be men who in their practical careers have been in touch with as broad a field as possible. A teacher lecturing in design of machine-parts should not only diffuse knowledge in this field, but his whole attitude should reflect his experience in the various fields he worked in. He may have been a shop-superintendent, a salesman, a purchasing agent, a field-engineer, in charge of outside erection work, he may have worked on research or in management. If he has really *learned* from the work he did in his career previous to teaching, his lectures will contain such personal notes as will impress themselves on his students with far more force than the normal stuff of the lectures. Although his task may be described as 'design of machine-

parts', he may one day dwell on the importance of good cost-accounting, illustrated by an experience he had as a salesman, some other time he may recount an experience with a machinist in charge of a turret-lathe making a certain machine-part, which experience may suddenly show his audience the existence of a social problem. Being faced with such subjects *outside* the standard pattern of the lecture, the students (or at least those at all sensitive to the question under consideration) will *want* to ponder over the thing which 'happens' to come to their notice. If the various teachers who in the aggregate probably have a fairly complete assortment of experiences, all 'talk to' their students and do not confine themselves to 'lecturing before' them, this early stage will help a student to find out which function would be best suited to his own turn of mind and to his own interest.

Since such teachers as these would undoubtedly be highly paid by industry, one must be able and prepared to make their reward as teachers high enough to make them consider this task. They must be educators and not only teachers and this is especially true for the earlier stages of the technical education. A young specialist, however important his scientific contributions in his field may have been, is not the most desirable teacher for these early stages. Moreover, the young students are not yet able to grasp difficult scientific technical matter; by the time the students have mastered the mathematical, physical, chemical knowledge required for these problems and have awakened to seeing their future place in industry, they will *want* such specialized *teachers* more than the *educators*. Of course it will remain true in all subsequent stages that no teacher should try to *infuse knowledge* and that the all-important aim is to inspire the student to *think*.

The summing up I gave in an earlier paragraph can now be extended to cover the conclusion that technical teachers, especially in the early stage of education, should be men of high standing, wide experience and should be highly paid. The extra expense is fully justified by the saving which later specialization makes possible.

The teachers of mathematics, etc., for the earlier stages of technical education should realize that the future engineer *wants* the knowledge in these fields but only as his *tools* and not as his *purpose*. One of the side lights the technical teachers should throw on their subjects is to show the students that they can not get far without knowing how to handle these tools. And the gradually increasing

difficulty of technical problems will be found to require an increasing knowledge in the field of these tools. So a student who decides that research in mechanical engineering will be his special interest will have to realize that he cannot do this work unless he has studied more mathematics, mechanics, thermo-dynamics, etc., than his fellow-student who found that management is more in his line and who therefore has to devote more time to other *tools*.

Technical teachers in the later stage of education should be the leading specialists in their fields. Of course, a wide and diversified experience might be very welcome but one cannot expect to find both sides in the same man. The specialist is *forced* to sacrifice part of the area of his field of study if he wants to dig to the greatest depth in his special field. So in the later part of the education in technical institutes (or technical departments in universities) the accent will necessarily be shifted from technical education to technical teaching. It is a special advantage if such an institute possesses at least a few leading technical teachers in the later stages who *do* still contribute to the educational side. The reader should not infer from the above that *all* education stops in these later periods. Quite a few subjects, other than technical ones, may be handled by teachers who do not neglect the educational side of their work and who are fully qualified as educators. But this is *general* education and an entirely different thing from what I described above as *technical* education.

Since I emphasized the necessity of ample remuneration for the technical teachers in the early phases, I must—with equal force, although on somewhat different grounds—point out that technical teachers in the later phase, the 'leading specialists in their fields', can only be expected to devote their abilities to this task if it offers them the satisfaction they might find elsewhere. Part of this satisfaction is dependent upon research facilities, part may be the opportunity to do really creative work for industry, part will be determined by their material reward. One man may attach greater importance to pay, another may primarily look for a well-equipped and well-staffed laboratory. The case will—in general—be somewhat different from the technical educators for the first period. The latter will—as a rule—be of more mature age, with an established reputation and a good career behind them. The specialized teacher will be younger, less settled, but just as much sought-after by industry, so that both groups of technical teachers should be highly paid if one wants to have an efficient institute.

No system or organization can achieve the best results with the poorest-grade man-power and no system or organization need be devised if the man in charge is a genius. In practice the work has to be done with men between these extremes. Organization can help to attain good results, but it will still be the best policy to attract the best men one can get, give them satisfactory circumstances, including ample pay, and adapt the systems to these men. Compromises will have to be accepted, but one should never forget that there is no wisdom in penny-wisdom accompanied by pound-foolishness.

UNIVERSITY ENTRY FOR ADULT STUDENTS

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THE report of the Working Party on University Awards (1948) divided potential entrants into two categories:

'(a) those who have remained full-time at a secondary school;

(b) those who have left school and pursued their education elsewhere'[1] The great majority of undergraduates come at present, and will continue to come, from class (a)—that is, from those who remain in full-time school education until the age of 17 or 18 and who obtain financial awards and university entrance on their results in the G.C.E. examination at the Advanced level. This was clearly recognized by the Working Party when it recommended that a larger number of State and Local Scholarships should be awarded on the results of this examination, and this recommendation is now in practice. At the same time, however, the report expressed its concern for potential entrants in class (b)—those who left school before entering the sixth form and who have not taken the G.C.E. (Advanced) examination and may not even have taken the G.C.E. (Ordinary) examination. 'Among the boys and girls who leave school before 18 [the report comments] there are undoubtedly some who by reason of native intelligence, supplemented by further education in full-time or part-time courses, are capable of profiting by a university education.'[2] 'There is also a type of student [it adds] who, having left school at about 15, pursues his or her general education by part-time study and who may prove to be well qualified for a university course.'[3]

The reasons for this premature school-leaving are various. Certain children feel strong inclinations for professions which do not require university qualifications; others have no wish at the age of 15 or 16 to continue their academic studies and desire independence from the restrictions, demands and discipline of school life and work; others are withdrawn from school by their parents for financial, social or other reasons; and yet others, whose full mental development is

[1] *The Report of the Working Party on University Awards* (1948), p. 7, para. 20.
[2] ibid., p. 13, para. 43.
[3] ibid., p. 13, para. 44.

somewhat delayed, may be advised by their headmasters (rightly, to judge from the evidence available at that age) that their chances of gaining a university place are very slight.[1] Whatever may be the reasons, however, there are undoubtedly some of these children who later regret very strongly their decision to leave school before the sixth-form stage, who discover in themselves mental aptitudes and desires which would fit them for a university education but who find, too late, that they are now deprived of the chance of entering a university in the normal manner.

It is difficult to estimate the number of such persons. The university entry under the ex-servicemen's F.E.T. scheme suggests very strongly, however, that it may be considerable. Under this scheme a large number of men entered our universities who had left school at the age of 16 or before and who did not possess the orthodox requirements for a university place and award. The success of most of these men both in their degree examinations and in the wider life of the university provides an extremely powerful argument for the view that there is a reserve of people of university quality in each age-group that is unlikely to reach a university under the present system. Personal contacts and the experience of adult education tutors both confirm this view. The examiners for Mature State Scholarships for people over 25 could also give interesting evidence as to the number of applicants who fail to reach the very high standards demanded for these awards but who are yet more able than many of our present 18-years old entrants. Many headmasters, too, could tell of eminently able children who have left school at 16 whilst more indifferent children remained until 18 and gained a university place. Furthermore, the available 'intelligence test' enquiries tend to give independent confirmation that, as regards *intelligence* (as distinct from knowledge), a considerable section of the population possesses the level of ability that is necessary for university study. The studies of Professor G. H. Thomson, Professor C. Burt and Dr. G. Leybourne-White on this question are the best-known instances.[2] The Barlow Committee's

[1] On this matter of late development, the Working Party quotes one piece of evidence, 'though we do not suggest that it is either typical or conclusive'. 'Figures supplied to us by one university and covering the six years 1935–41 show that of the students who took good degrees (firsts or good seconds) 46 per cent obtained marks in the Higher Certificate well below the average expected from second classmen; on school examination results they would not have qualified for awards and, in fact, many were able to enter the university only by means of Teacher Training grants.' (ibid., p. 9, para. 30.)

[2] Thomson estimated that 4 to 5 per cent of the population have a degree of intelligence equal or superior to that of the medium student reading for an Honours degree (*British Journal of Educational Psychology*, 1945, 15, pp. 76–9). Burt estimated that 40 per cent of

report supports this conclusion—'About 5 per cent of the whole population show, on test, an intelligence as great as *the upper half of the students*, who amount to 1 per cent of the population. We conclude, therefore, that only about one in five of the boys and girls, who have intelligence equal to that of the best half of the university students, actually reach the universities. It cannot be assumed that all of these have the other innate capacities necessary to a university career. It must be allowed, too, that many boys and girls of high intelligence would not desire a university career. Yet there is clearly an ample reserve of intelligence in the country to allow both a doubling of the university numbers and at the same time a raising of standards.'[1] Insofar as this aim of 'a doubling of university numbers' was almost achieved in the post-war period, it has to be remarked that it was achieved by accepting students who left school at 16 or before. Now that the F.E.T. scheme is no longer in operation, by contrast, such students are not accepted and the university population remains high without them because a larger number of awards is now made to children who stay at school to the age of 18. The latest report of the University Grants Committee also supports the view that this reserve of intelligence still exists. It points out the sharp decline in the proportion of the population at school at the age of 17 by comparison with the age of 15. At 15, the proportion is 28·3 per cent; at 17, this has dropped to 6·6 per cent.[2] The report then adds: 'Even if the majority of those who leave between these ages would be unsuitable for a university education, they must include a considerable number who leave for reasons other than lack of academic promise, and who would be worthy university students if means could be found to retain them at school.'[3]

What possibilities exist at present for this group to enter a university? Briefly, the university awards open to these class (b) persons comprise:

the non-fee-paying secondary school children who never entered a university were of an ability equal or superior to that of the average university student (ibid., 1943, 13, pp. 83–98). Leybourne-White estimated that 4.8 per cent of the population have a degree of intelligence equal or superior to the average level of a large sample of Manchester University students ('Capacity and Opportunity for university education', *Pilot Papers*, II, i, 1947). Cf. F. W. Warburton: *The Selection of University Students* (1952).

Cf. also: *Conference of the Home Universities 1947, Report of Proceedings*, pp. 37–85, and in particular Professor Thomson's paper on 'The Reserve of Intelligence outside the universities'.

[1] *Scientific Manpower* (1946), p. 9, para. 26, my italics.

[2] *University Development—Report on the Years 1947 to 1952* (1953), p. 22, para. 36, note.

[3] ibid., p. 22, para. 36.

(i) Mature State Scholarships for people over 25; in 1953 'not more than 30' were offered;

(ii) Technical State Scholarships;

(iii) Certain bursaries and scholarships offered by a number of universities and colleges;

(iv) Adult Grants for university education offered by certain local education authorities. The Working Party commends these arrangements and adds: 'We have little doubt that with adequate and well-planned publicity the number of awards made by the Ministry and local education authorities will need to be increased.[1]'

There are strong reasons for thinking—like the Working Party itself—that these arrangements are inadequate, however.

(i) By the age of 25 many class (b) persons are no longer able or well-advised to embark upon a university career. Many of them are married and have family responsibilities. Many, too, are dissuaded by the prospect of giving up their security and their chances of promotion in their present work and by the 'risk' of finding suitable employment after graduation. For these and other reasons, then, only a slight section of these people will ever apply for Mature State Scholarships.

(ii) Many potential entrants do not possess technological aptitude and ability. Technical State Scholarships are obviously of no use to an aspiring Arts entrant, for example.

(iii) The number of private bursaries and scholarships available is very severely limited, and these awards are sometimes linked to certain subjects.

(iv) The number of local authorities making Adult Awards not limited as to subject is small—and, it may be added, these arrangements are often poorly publicized. Above all, there is in regard to them the very natural stipulation that the candidate must have obtained university entrance—must, that is to say, have satisfied the matriculation requirements of the university concerned.

At this point, consequently, the problem ceases to be financial alone and involves the criteria of selection and admission employed by our universities. Under present arrangements, many of the potential entrants with whom we are concerned are unable to gain an award precisely because they do not qualify for university entrance by having the requisite number of passes in the G.C.E. examination. The Working Party recognizes this when it says: 'For such

[1] op. cit., p. 13, para. 43.

students, performance in the examination for the General Certificate of Education may not always be an appropriate test of capacity and specially arranged methods of selection may be required.'[1]

The Working Party report goes on to outline and recommend what we may call a method of class (b) selection of university entrants. The scheme envisaged is not wholly unlike the ex-servicemen's F.E.T. scheme, but it differs importantly in that the selection of students would rest with a Ministry Final Selection Board on which 'the universities should be represented'. The whole section is worthy of quotation as being one possible solution of the entire problem—so far, at least, as *men* are concerned.

> 'As a beginning, it seems to us that the introduction of the National Service Act affords an additional opportunity of selecting those who are capable of profiting by a university education but have not succeeded in gaining a university award. The scheme which we propose is that a certain number of these men should be selected on the ground of their record and intentions, supplemented by an appropriate written examination. As this scheme from the very nature of the problem is bound to be somewhat limited in scope, we recommend that the applicants should go through a selection procedure similar in principle to that used by the Civil Service Selection Board. The tests and examination to be employed would naturally differ widely from those at present used for the selection of Civil Servants, and the collaboration of the universities, both in their preparation and in their assessment, would be an essential part of the scheme. The final decision, just as in the selection of candidates for the Civil Service, would rest not with the Board responsible for these tests but with a Final Selection Board constituted by the Ministry of Education, which would have before it the reports of the testing Board and would summon for interview at any rate those candidates who were most favourably reported on by that Board. We recommend that the universities should be represented on the Final Selection Board. Awards should be made in the light of this Board's reports. We do not suggest that more than a small number of these awards should be made at the outset; but, when experience has been gained, it may well be that the number of awards offered should justifiably be increased.'[2]

One member of the Working Party, Dr. W. W. Grave (then Registrary in the University of Cambridge and now Principal of the University College of the West Indies—whose view would, I think,

[1] op. cit., p. 13, para. 43.
[2] ibid., p. 13, para. 43.

be generally accepted by our universities) dissented from this proposed scheme. He agrees that 'consideration should be given to the making of special arrangements for the award of state scholarships to young men whose character and intelligence are such that it would be in the national interest to ensure that a university course should be given to them'.[1] But he wishes the selection of such entrants to be the prerogative of the universities. 'No reason has been advanced [he suggests] why universities should not be asked whether they would be willing to offer a small number of places to these men, and to arrange for their selection. It would not be difficult to devise academic and other tests suited to their circumstances.' This view expresses a very understandable desire for autonomy in the selection of their students on the part of the universities. At the same time, it may not be wholly acceptable to the Ministry and the local education authorities. In view of the importance of the problem, however, it ought not to be impossible to reach agreement upon some method of selection and award.[2]

If a method and scheme were devised, it is clear that some modification of matriculation requirements would be necessary. Dr. Grave ends his note by saying: 'Furthermore, [these students] would presumably need to satisfy the matriculation requirements of the university to which they wish to go.' By contrast, the Working Party implies that some alternative criterion should be used. This question is in fact one on which opinions are sharply contrasted. It would certainly be foolish to imply that these requirements were superfluous or were merely sustained by a kind of academic prejudice. The universities are fully entitled to satisfy themselves that a prospective student has the elements of a sound general education and the basic pre-university knowledge required to study his selected subject. What is perhaps more open to question is whether a pass in one specific subject at G.C.E. (Ordinary) level—Latin or Greek in the case of Arts students is an outstanding example—is an absolute prerequisite without which no-one can be known to be able to benefit from a university education. Indeed, the more one speculates on the character of this examination, the usual methods of preparation for it and the degree of interest in our classical heritage which it induces in the candidates, the more questionable any such assumption

[1] ibid., p. 23.

[2] This view is perhaps too optimistic. I understand that certain Mature State Scholars, despite the very severe test in which they have succeeded in order to win their Scholarship, have in fact been refused admittance by some of our universities.

appears. Experience of the admission of ex-servicemen to our universities without a qualification in Latin or Greek suggests, on the contrary, that although it may be highly desirable, it is not completely indispensable and that the lack of specific matriculation requirements may be compensated by outstanding maturity or very evident intellectual abilities. In general, the experience of university teachers seems to be that knowledge of one of the classical languages is both a good indication of general intelligence and a desirable background for Arts studies (and for certain linguistic work, e.g. in the history of the Old French language, it is virtually indispensable). There is therefore no suggestion here that universities should modify their matriculation requirements for normal (class (a)) entrants. I am convinced, none the less, that our universities should consider adapting their requirements (as well as their methods of selection) for class (b) entrants. I do not believe that these requirements should be less stringent; I do believe that they should be somewhat *different*, and that a certain flexibility in university regulations is preferable to the wastage and frustration of a part of the nation's best intellectual ability. At the least, it could perhaps be agreed that the nature of the problem would warrant a period of experiment with a small number of entrants, of the kind envisaged by the Working Party.[1]

There is a second and perhaps more considerable difficulty, however. Even if a satisfactory system of selection for an Adult Award and for a university place were devised and even if matriculation requirements were experimentally adapted for a small number of class (b) entrants, there is a further objection that can be brought against such a scheme. Although a young man who left school at 16 or earlier may be as mature (or more so), as intelligent and as keen as a normal university freshman who remained at school until 18, he may be less knowledgeable as regards the foundations of the subject which he wishes to study. No amount of experience of the outside world, of intelligence or of mental maturity can compensate for an ignorance of German grammar or of the major outlines of English history. The universities cannot properly be expected to undertake instruction which belongs to the sixth form.[2] Yet without this instruc-

[1] This adaptation already operates at Oxford and Cambridge, where the usual entrance requirements are waived for holders of extra-mural bursaries. Only such explicit regulation can meet the position; the all-embracing 'discretion' clause in most university regulations is too formal to encourage adult applicants.

[2] The fact that they sometimes have in fact to undertake such sixth form instruction should not be regarded as an argument for increasing this particular burden upon them.

tion no student can advance to university-level study of his subject. Such is the objection, and it was perhaps in the minds of the members of the University Grants Committee when they said that although they would welcome an increase in the student population, this could only be possible 'if means could be found to retain at school' some of those who at present leave at the age of 16 or earlier; 'the increase could only come through the retention in the grammar schools of a greater proportion of the more intelligent pupils who now leave prematurely'.[1]

Such a retention is clearly most desirable, but at the same time it does seem that the Committee is here making an assumption that need not be made and that was not in fact made by the Working Party. We may note at once that there are certain disciplines to which this objection does *not* necessarily apply, namely, those disciplines which are not studied in most schools and whose study usually begins, even for normal entrants, at the university itself. There seems no sufficient reason, therefore, why carefully selected class (b) entrants should not be admitted to such departments of study, granted the necessary level of ability, aptitude and general education.

There remain, unfortunately, the numerically largest departments —in the Faculty of Arts alone, English, French, German, Latin, history and geography (and mathematics for certain B.A. degrees). A system of entry which precluded these might be a useful experiment; it would be markedly incomplete, however. I do not believe that the universities ought to or are likely to accept students into *these* departments unless they possess at least the minimum knowledge of their subject which is attested by performance in the G.C.E. examination or a university entrance examination. On this point and in regard to these subjects, it is arguable that the Working Party erred on the side of optimism. The universities would be right to insist upon any potential class (b) entrants to these departments having attained this minimum level of knowledge.

How are these university applicants to reach this level of knowledge? Further Education classes over a period of three or more years are one evident way, supplemented by the private study required for such classes. One local authority making Adult Awards for university courses asks an applicant 'to produce evidence of having devoted his leisure time to study in a University Tutorial Class or in other ways of which full particulars should be stated' and

[1] op. cit., p. 22, para. 36.

adds that he 'may also be asked to submit a selection of the essays or other written work which he may have prepared in the course of his previous studies'.[1] These are clearly most desirable requirements —although one would not wish young aspirants to a full-time university education to invade University Tutorial Classes, which exist primarily for other purposes (for the liberal education of voluntary students of mature years who have no professional aims). They are also indicative of the care taken in making these awards, and they make it highly probable that the requirements are in many ways *more* stringent than they are for normal entry at 18 and that standards are higher and not lower.[2]

One of the findings of the Working Party was that 'provision should continue to be made, and further experiments devised by the Ministry of Education in co-operation with universities, for awards to students of good ability who have left school before 18'.[3] In general, little has been done, it seems, to implement this recommendation. The present time, when the earlier over-crowding of our universities has largely abated and when a period of 'consolidation' lies ahead, offers a good opportunity for a consideration of this question and for action upon it.

In particular, I have urged that the chief reserve of highly intelligent potential entrants is to be found in the age-group between about 19 and 25, a group largely neglected at the moment. At present, there are few awards for *any* premature school-leavers. Of these awards, a considerable proportion is for technology students. Of the remainder, the Mature State Scholarships are only open to persons over 25, and even if the number of these Scholarships were to be increased, the lack of provision for non-technology students under 25 would remain. Any investigation ought to consider, I believe:

(a) instituting a type of State award for non-technology students between 19 and 25; and

(b) urging more strongly upon local education authorities the granting of Adult Awards of the kind made by far too few authorities at present or else made only for certain selected subjects of study. At the same time, the universities ought to consider the enlargement of

[1] The local education authority from whose handbook I quote is Kingston-upon-Hull.

[2] One should also mention here the possibilty of a year's course at one of the non-vocational colleges like Hillcroft and Fircroft. One also wonders whether the County Colleges Scheme (when it operates fully) could not include the provision of courses for intending university entrants in class (b).

[3] op. cit., p. 14, para. 47.

their entrance regulations to allow the entry of a small number of students older than 18 holding such State or local awards.

Certainly in its initial stages and probably at any later time, such a scheme would involve few students in relation to the total university population. At first, in fact, this scheme ought to be experimental and subject to revision after a trial period.

Both the national interest and the concept of fair opportunity to each individual *throughout* our educational system require discussion and investigation of this general problem. If a successful scheme were devised, the advantages to the entrant need hardly be mentioned; they would involve personal satisfactions and enrichments which are at present denied to him. Advantages to the universities might well come from the leaven of people of greater maturity and breadth of outlook within their student bodies (as, in a more marked way, under the F.E.T. scheme). Moreover, if it is the case that the present situation in regard to the employment of Arts graduates makes any expansion of Arts Faculties undesirable for the moment,[1] the admission of these older students would allow universities to apply rather more severe entrance requirements to their 18-years-old applicants than is warranted at present by the national need for graduates. The University Grants Committee remarks: 'In most universities and colleges not many suitable candidates present themselves for whom places are not available, and in some we have been told that "the margin of cultivation" has been reached'[2]—reached, that is to say, with regard to those children who remain at school until 18. If a 'class (b)' entry scheme were introduced, some of these 'marginal' younger applicants might be refused admittance without any reduction in the number of graduates leaving the universities. The general standards required for entry might thus be slightly raised. The nation in general would benefit also, for the very high qualities and intelligence of a section of the population would no longer remain undeveloped to their fullest extent. It is therefore to be hoped that, in this period of university consolidation, further thought will be given to the problems indicated by the more neglected recommendations of the Working Party's report.

[1] The University Grants Committee would welcome an increase in the student population, but only subject to three conditions. 'The first, which at present would apply mainly to arts courses, is that there should be no increase in any faculty that would lead to difficulties in finding satisfactory employment for its graduates.' (op. cit., p. 22, para, 36.)

[2] ibid., p. 26, para. 45.

THE GENERAL EDUCATION OF THE SPECIALIST STUDENT

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THE problem of the relation between general and special education has been raised several times in the UNIVERSITIES QUARTERLY[1] and was well expressed by the questions: 'Do university students receive a balanced general education which gives them an understanding both of the arts and of the sciences and of the problems of modern society and provides them with a broad foundation for the development of their special interest?' and: 'Is it possible to provide for all students a course giving an overall synthesis, and what should be the nature of that course?'

In the United States there have been several important approaches to the problem, notably at Harvard and Chicago; but these approaches were in a territory largely occupied by the elective system[2] and by courses fragmented to a degree[3] unknown in this country. More relevant to our conditions are the experiments in widening the interests of scientists at Cambridge[4] and of students generally at Stoke.[5] A long time will no doubt elapse before we find a satisfactory solution to the problem of the general education of the specialist student, but in the meanwhile it may help if we build up a file of 'case histories' indicating what is being done in individual universities and colleges. This paper is presented as one contribution to such a file.

The college concerned[6] is an old-established residential teachers' training college of about 20 tutors and about 250 men students. Of these latter, the majority take a two-year course leading to a teacher's certificate, some take a three-year course leading also

[1] Editorial Notes: 'The UNIVERSITIES QUARTERLY and University Problems'. *Univ. Quart.*, Vol. 3, No. 1, pp. 427–8; p. 428.

[2] Kandel, I. L.: 'Higher Education in the United States—A Symposium. I. Introduction'. *Univ. Quart.*, Vol. 3, No. 1, pp. 436–42; p. 441.

[3] Snaveley, Guy E.: 'Aims and Purposes of Higher Education'. *Univ. Quart.*, Vol. 3, No. 1, pp. 462–70; p. 468.

[4] Henn, T. R.: *The Apple and the Spectroscope.* Methuen, 1951, p. 166.

[5] Stewart, W. A. C.: 'The University College of North Staffordshire: the first Two Sessions'. *J. Educ.*, Vol. 84, pp. 501–03; p. 502.

[6] The College of S. Mark and S. John, University of London Institute of Education.

to a degree, and some are graduates taking a one-year course leading to a post-graduate certificate in education. The mere fact that students of different subject specialities, being resident, gossip together into the dim dawn hours, and that they lead a vigorous corporate life with a catholic range of student societies, no doubt prohibits the more extreme forms of specialist philistinism; yet the tutorial staff felt that this was not enough. 'We are often told that the education of a scientist should be broader and more liberal',[1] and this is no less true of other specialists. For some years past, therefore, there has been a series of exhaustive (and exhausting) discussions on the question; and the arrangements for general education seem now to be settling down into a fairly well-defined pattern, which is that here described.

Rejecting 'the error of distracting and enfeebling the mind by an unmeaning profusion of subjects; of implying that a smattering in a dozen branches of study is not shallowness, which it really is, but enlargement, which it is not'[2], we permit each certificate student to offer only one main academic study. As a tutorial staff we are 'committed to the virtues of an educational system in which specialization offers the key to the mastery of one's own mind through the mastery of one's own subject'.[3] Different subject tutors naturally turn the key in different ways, but it may be of interest to outline the way in which the scientists work.

Since 'it is fatal if the first year at the university be frittered away in going over the old work in the old spirit',[4] students specializing in biology, for example, find that most of their first term is spent in reading with their tutor a single seminal book, *The Origin of Species.* Before very long they are seeking to assess the general intellectual climate of the first half of the nineteenth century, to discern the relationship between biological theory and social ideology, to trace the historical development of the concept 'species', to find a philosophical basis for classification in general, and to recover from the shock of discovering how grossly a great work has been over-simpli-

[1] Reid, Louis Arnaud: 'The Nature and Justification of an "Arts" Education'. *Univ. Quart.*, Vol. 3, No. 1, pp. 497–504; p. 497.

[2] Newman, John Henry: 'The Idea of a University', *Select Discourses*, ed. May Yardley, p. 164. Cambridge University Press, 1931, p. 66.

[3] Fulton, J. S.: 'General Education'. *Univ. Quart.*, Vol. 5, No. 1, pp. 41–8; p. 41.

[4] Whitehead, A. N.: *The Aims of Education and Other Essays*, 1929, Macmillan, New York, p. 41.

fied on its way to the textbooks. It seems reasonable to hope that all this may have a liberalizing effect on the students. Then, in their second year, specialists in any one of the sciences spend two lecture-periods each week with tutors in the other sciences. No attempt is made at 'general science': rather, students are led on to discover how their own special science interpenetrates the others. The biologists learn the physics of biological instruments and the energetics of biologically important chemical reactions, the physicists study the relationship between biological form and physical scale and between chemical structure and physical properties, the chemists treat of the implications for living things of some important principles of physical chemistry. Thus, we try not to neglect 'perhaps the most important of all lines of approach, that which extracts the maximum possible educational value from the specialist subjects themselves'.[1]

Apart from their elected main academic study, all students pursue a professional course in education, which includes physical recreation, speech training and guidance in written English. They all spend some time during their first year pursuing introductory, partly recreational, courses which bring them into contact with the natural sciences, the visual and plastic arts and crafts, and music; while nearly all (the College being a Church foundation) attend divinity lectures. These courses, which space does not permit to be dealt with in any detail here, go some way towards enlarging the students' minds: but we felt that something more was needed.

This we try to provide by means of what is called 'The Common Course'—common, that is, to all students of whatever subject speciality. The planning of this course, upon 'Aspects of Western European Civilization', is in the hands of a small committee elected by and periodically reporting to the college's Academic Board; but the plans could not have been implemented without the willing co-operation of most of the tutorial staff. It is clearly understood that no lecturer is under any obligation to take part in the course, and in fact some do not do so, but most tutors have been willing to face the additional work involved by participation. Before the course is outlined, perhaps the principles on which it was framed should be indicated. These included:—

(*a*) Since we wished students to appreciate the interrelations of different disciplines of thought and their dependence on what

[1] James, Eric: 'Collaboration between Schools and Universities'. *Univ. Quart.*, Vol. 5, No. 1, pp. 26–32; p. 29.

has gone before, we decided that the general framework of the course should be an historical one.

(*b*) Since we had to accept 'the plain, humble principle that the child or youth who is to be the learner cannot learn all we should like him to know',[1] and since we wished so far as possible to avoid a purely panoramic treatment, we made our course highly selective.

(*c*) Since 'Nothing—not all the knowledge in the world—educates like the vision of greatness',[2] we based the course to a considerable extent upon the study of carefully selected great men.

(*d*) Since we wished the students to gain some idea of the complexity of important issues, we avoided over-simplifying the lectures, preferring to run the risk of talking somewhat above the students' heads.

(*e*) Since we wished to give a glimpse of the sheer hard work involved in mastering any subject, no tutor was invited to deliver more than a small number of lectures, which could thus be prepared with great care.

(*f*) Since we felt that tutors would lecture well only on topics of which they had a special knowledge or in which they took a special interest, we omitted entirely some important subjects for which none of us happened to be particularly equipped; and some lectures (e.g. 'John Milton: Religion and Liberty') were dropped in later years when the tutors who had first given them were no longer teaching in the college.

(*g*) Since we felt it valuable that students should not merely be told about general culture but should perceive that their tutors were generally cultured, we welcomed the offers of members of the staff to lecture on topics outside their specialist subjects. For example, a modern linguist lectured on 'Greek Philosophy: mainly Plato', a natural scientist on 'Orthodoxy and Freethought: Newman and Stephen', and a geographer on 'The Idea of the Primitive: Freud and Frazer'.

(*h*) Since merely listening to lectures does not get one very far, we took steps (some of which will appear in the sequel) to encourage students to take an active part in the course.

[1] Ortega y Gasset, José: *Mission of the University*, tr. H. L. Nostrand, Kegan Paul, 1930, p. 55.

[2] Livingstone, Sir Richard: *Some Tasks for Education*, p. 98. Oxford University Press, London, p. 17.

As initially planned, the Common Course occupied two periods each week over a period of two years, the first weekly period being devoted to a lecture and the second, at the lecturer's discretion, being apportioned between questions, discussion and readings. Each year there have been changes in timetable organization and lecture topics, but through these changes the essential pattern has remained fairly stable. The following schedule includes some lectures which, for one reason or another, were not given to a particular year of students, but represents fairly the general plan of the course.

Introduction

1. The Idea of the Course.
2. Modes of Thought and Experience.

The Ancient World

3. Greek Society: the City State.
4. Greek Tragedy: Aeschylus.
5. Greek Philosophy: mainly Plato.
6. Early Science and Technology.
7. Early Mathematics.

The Medieval World

8. The Emergence of Feudal Society.
9. The Medieval Church: the Papacy and the Orders.
10. The Medieval Synthesis: Aquinas.
11. Architecture: the Medieval Art.
12. Palestrina and Early Music.
13. Chivalry and the Code of Love: Chaucer and Malory.

The Reformation and Renaissance

14. The Scientific Criteria of Truth: Roger Bacon to Francis Bacon.
15. The Beginnings of Capitalism.
16. The Reformation.
17. The Music of Protestantism: Bach and Handel.
18. Tragedy: Shakespeare and Racine.
19. Comedy: Shakespeare and Molière.
20. John Milton: Religion and Liberty.

The Enlightenment

21. Newton: a Seventeenth Century Thinker.
22. Man a Machine?: Harvey and Descartes.
23. Man a Universe in Himself: Blake.
24. The Empirical Theory of Knowledge: Descartes to Hume.
25. Attitudes to the Past: Voltaire and Gibbon.

The Modern World

26. The Romantic Movement: Coleridge.
27. The Rediscovery of the Dialectic: Hegel and Marx.
28. The Time Sense in Science: Lyell and Darwin.
29. The Idea of the Primitive: Freud and Fraser.
30. Orthodoxy and Freethought: J. H. Newman and Leslie Stephen.
31. The Modern Poet: Valéry and Eliot.
32. The Modern Novel: Joyce.
33. Frontiers of Science.
34. Recent Christian Thought.

Some tutors have criticized the course as being ambitious and as inviting superficiality of treatment, but the general feeling has been that 'we are too often afraid of the word superficiality . . . the harmful kind of superficiality is that which simply gives the student snippets of information; the charge is not justified when it is made against courses which can make him think and discuss and possibly read for himself about topics of which an educated man should be aware'. These desiderata we have sought to achieve in several ways.

First, as much time as possible is provided for questioning the lecturer and discussing his topic with him and any other tutors present. Second, a conspicuously labelled shelf in the college library is set aside for a selection of books bearing on the lectures for the term. Third, a few tutors have arranged to read, with small parties of really keen students, books of which the tutors concerned happen to think highly (Plato's *Symposium* in one case, readings from Erasmus and Rabelais in another, readings from Augustine and Dante in another). Fourth, during the term there are arranged a display of art and a recital of music relevant to the historical period being dealt with. Fifth, each student is given a duplicated prospectus of the whole course before it starts, so that he may have some idea of what to expect, and he is advised to keep for later reference this and subsequently distributed documents. Sixth, each student is given each term a duplicated guide, which includes a highly selective reading list short enough to make it not impossible to read the matter mentioned, synopses of all lectures to be given during the term, notices of any texts which individual tutors are offering to read with small groups of students, dates for the art display and music recital, and a

fuller bibliography which may act as a guide to reading after the student leaves college. (Perhaps this is the best place to mention that, upon acceptance for the College—maybe a couple of years before actual entry—each student is also sent a suggested reading list, printed on a stout folded card which can be carried about in pocket or haversack.)

What, then, has this Common Course achieved? Little can be said with certainty, but some of us think that we can detect in our students a liberalization of thought. Certainly, the students discuss the course a good deal among themselves and with tutors. Some of the recommended books are in fact read in the college library, and science students may be observed about the corridors clutching Penguin Classics. At least one tutor fears that he may have made mistakes when lecturing on a subject in which he is not highly expert, but he has been content 'to exhibit himself in his own true character—that is, as an ignorant man thinking, actively utilizing his small share of knowledge'. By and large, we have dissociated ourselves from the Erewhonian professors among whom 'it seemed to be the perfection of scholarship and good breeding . . . not to have—much less to express—an opinion on any subject on which it might prove later that they had been mistaken'.[1] And, in the process of preparing our lectures, attending each other's lectures, planning and criticizing and replanning the course, it may be that we tutors have ourselves become a little less narrow.

Working together in a Church college, yet ourselves men of various religious beliefs and philosophical and political outlooks, we have been able to find sufficient common ground to give some sort of unity to the general education of our students. That common ground, a liberal and democratic humanism which tolerates and respects that with which it disagrees, is one which has been subject to much erosion of recent years; but it has firmness yet. And, from this firm base, which for many rests upon deep religious conviction, we have set out to give our students some slight inoculation against

> This strange disease of modern life
> With its sick hurry and divided aims.

[1] Butler, Samuel (1872): *Erewhon; or Over the Range*, p. 316. Cape, London, 1927, p. 228.

SCOTTISH UNIVERSITY ENTRANTS

Norman T. Walker
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A SURVEY of Scottish university entrants was made recently to find whether there existed any geographical inequality in opportunities of higher education, whether, that is, some Education Authority areas were markedly inferior to others in the proportions of their age-groups entering the university. The results of the survey, while throwing light on the areas of recruitment of university students, are of more general interest.

For Scotland's four universities the numbers of first-year students in session 1952–53 were: St. Andrews, 382; Glasgow, 1,067; Aberdeen, 356; Edinburgh, 840—a total of 2,645, comprising 1,779 men and 866 women. Of these 522 had their home addresses outwith Scotland, in the proportion of two men to one woman. The Scottish universities may thus be said to cater mainly for the Scots; but not equally for all areas of Scotland. There are thirty-five areas of educational administration, comprising the four major cities and thirty-one county areas. The Scottish Education Department, in its annual reports, groups the areas in the following categories:[1] cities; mainly industrial areas; mixed industrial and rural areas; mainly rural areas; areas mainly of heath and moor. There are wide differences of population between the administrative areas, but comparison is possible if the distribution is given in terms of percentages of the relevant 18-year-old age-groups. Estimates of these in 1952 were supplied by the Registrar General for Scotland. Areas mainly of heath and moor, sparsely populated as they are, send the highest percentage (4·1) of the age-group to the university, though the numbers of students are small. Next in order come the four cities with 3·3 per cent. At the opposite extreme the mainly industrial areas of Dunbarton, Lanark and Renfrew send the lowest percentage, 1·9. The reason for this is not clear, but it may be partly because the industrial areas offer alternative forms of employment not offset by the presence of a university in their midst. The mixed industrial and

[1] *Cities*: Aberdeen, Dundee, Edinburgh, Glasgow; *Mainly industrial areas*: Dunbarton, Lanark, Renfrew; *Mixed industrial and rural areas*: Ayr, Clackmannan, Fife, Midlothian, Stirling, West Lothian; *Mainly rural areas*: Aberdeenshire, Angus, Banff, Berwick, Bute, Dumfries, East Lothian, Kincardine, Kirkcudbright, Moray and Nairn, Orkney, Perth and Kinross, Roxburgh, Selkirk, Wigtown; *Areas mainly of heath and moor*: Argyll, Caithness, Inverness, Peebles, Ross and Cromarty, Sutherland, Zetland.

rural areas are the next lowest (2·5 per cent), possibly for similar reasons. The mainly rural areas (2·8 per cent) occupy the intermediate position with Kirkcudbrightshire and Wigtownshire showing the lowest percentages, though in these two counties the numbers of students are small. For Scotland as a whole 2·81 per cent of the age-group entered the universities in 1952.

The Survey enabled a distribution of the homes of entrants to be plotted by universities and by faculties. Edinburgh, as befits the capital city, draws its university students from a more widespread area of Scotland than the other three universities; all administrative areas send students to Edinburgh save two relatively small and remote counties. Edinburgh has also the largest number of outwith students, about a hundred more than St. Andrews and more than twice the number attracted to Glasgow, the University with the largest intake. Relatively to the total entrants, however, St. Andrews has most outwith students, 38 per cent as compared with 29 per cent for Edinburgh, 10 per cent for Glasgow and 7 per cent for Aberdeen, which is the most Scottish of the four. Glasgow draws most heavily from its own city population (40 per cent), followed closely by Aberdeen (39 per cent) and Edinburgh (33 per cent). St. Andrews, unlike the other three university centres, is not an administrative area for education; but it draws heavily from Dundee and Fife.

Arts is the largest Faculty. It is followed, if outwith students are discounted, by the numbers of entrants proposing to read for degrees in pure science, and then by the Medical Faculty. Medicine has both absolutely and relatively the largest number of outwith students. If both categories of students are taken into account, the Medical Faculty is exceeded only by Arts. All Education Authority areas are represented in Arts and all but one in pure science. Six areas are unrepresented in the more expensive medical course.

When university entrants are shown as percentages of the total numbers of pupils who completed five years of secondary schooling in 1952, the figures are approximately equal for all areas except the mainly industrial areas, which show the lowest figure of 26 per cent. The over-all figure is 34 per cent; from which if follows that two-thirds of those pupils completing five years of secondary schooling go elsewhere than to the university. There is thus a considerable reservoir of educated ability from which the universities could still draw.

Men outnumber women in the universities by more than two to one

(2·05 to 1). When the universities are examined separately, Glasgow with a ratio of 2·8 to 1 and Edinburgh with 2·1 to 1 are seen to be preponderantly men's universities compared with Aberdeen (1·7 to 1) and St. Andrews (1·2 to 1). St. Andrews has relatively fewest men and most women entrants. Comparison by faculty shows a different picture. Arts is preponderantly a women's faculty with a ratio of men to women of 0·9 to 1. Medicine is preponderantly male (3 to 1). Of entrants planning to read for a degree in pure science, there are 2·9 men to 1 woman. Other departments of study, Agriculture, Commerce, Dentistry, Engineering, Forestry, etc., have relatively few women, some none at all. Sixty-six per cent of all women entrants enter the Arts Faculty, but only 29 per cent of all men entrants. When comparison in respect of sex ratio is made by area of recruitment, the mainly industrial areas, which sent the lowest percentage of their age-groups to the university, are found to have a high ratio of men to women. Proportionately more women in the counties concerned favour the Teachers' Training Colleges in preference to the university.

The median year of birth of entrants in 1952 was 1934. This was the median year of birth for women in each faculty and also for men in Arts and Medicine. In other faculties and departments it was a year earlier, 1933. Women entrants are more homogeneous in age than men. Thirty-eight of the entrants were born in 1919 or earlier, thirty-four being men and four women. Fifteen were born in 1936, seven men and eight women.

More women (84 per cent) enter university immediately on leaving school than men (68 per cent). The difference holds for all faculties and departments and is doubtless due to the claims of national service.

LETTER TO THE EDITOR

DEAR SIR,

An investigation has recently been made by the Physics Department of the University of Bristol about what happens to those candidates for admission to the Honours School of Physics who are not accepted. The number of applicants is more than five times as great as the number of places, so it might seem that admission is highly competitive. We wanted to know, however, whether admission to *some* university, not necessarily the one that the student would prefer, is in fact so competitive as this, and also whether there is any large number of worthy applicants who apply but fail to get in anywhere. On the basis of this limited survey, the answer to both questions seems to be 'no'.

The Department received 276 applications for entry into the Honours School of Physics in October, 1953. Of these, 49 were eventually admitted. In March, 1954, a circular letter was sent to the remainder, with the exception of 16 candidates who had renewed their application for admission, either in 1954 or on completion of National Service. The letter asked if the candidate had been accepted by some other university; or, if not, whether he (she) were still at school, doing National Service, or otherwise employed. It also enquired whether the candidate was continuing his efforts to obtain admission to a university.

Replies were received to all but fifteen of the letters. Of these 196 replies, 134 stated that the candidate had already been accepted by some other university or university college, while 8 more were continuing full-time education at technical colleges, or under the aegis of industry. Of the original group of applicants, we thus have information about 261, and of these 191 (73 per cent) are already sure of a university training, or near equivalent.

There remain 54 other replies: 12 were still at school, and all but one of these were applying again for university entrance in 1954: 20 were doing National Service, and of these 12 intended to re-apply for entrance on demobilization; 9 had started work in scientific occupations—mainly laboratory assistants—and 3 had taken non-scientific posts. Thus of the original group of applicants, 49 not already accepted are applying again for university entrance, or intend to do so in the future. Assuming that the same proportion of these (73 per cent) will be admitted on their second attempt—which

is believed to be a conservative estimate—the total admitted will rise from 191 to 229, which is 87 per cent of those about whom we have information.

If a similar enquiry were to be made by other universities, or in another year, the details of the answers might well be different, but there is no reason to suppose that the general conclusion would not be the same. This conclusion is that of all those boys and girls who at the present time apply for university entrance to study physics, about 90 per cent are in fact admitted somewhere, sometime, to a university or comparable institution. The intense competition for admission is, in short, largely illusory.

In so far as these figures present a true picture of the situation, in the field of physics at least, we may draw two further conclusions, relating to somewhat dissimilar topics. Firstly, since most local authorities are prepared to give financial assistance to any student who has been offered a place in a university, and since, as we have just seen, most qualified students are, in fact, offered a place, the atmosphere of intense competition and consequent over-specialization which pervades much sixth-form teaching would appear to be without any justification. The same boys would go to much the same universities—and probably benefit more from so doing—if their sixth-form education were more liberally based and less advanced in their specialist studies. The competition is for the honour of an open entrance scholarship, and not for admission to a university or for financial support. Secondly, if it is necessary to train more physicists for industry and particularly for the schools, the limiting factor is not at present the universities' capacity to accept students. If it is true that more and better physicists are needed now and for some years to come, the essential prerequisite is a flow of more and better physics students from the schools. It seems unlikely that financial considerations now prevent many students reaching a university who have both the inclination and the ability to proceed there. Those with ability, but no inclination to study science, are to be sought in the Arts sixth forms; and one may wonder whether more of them would not have chosen to study science if they, their parents and their headmasters, had been fully aware of the need of the community for well-educated scientists, and the opportunities open to such men.

Yours faithfully,

H. H. Wills Physical Laboratory,
University of Bristol.

N. F. Mott, N. Thompson

AN UNHAPPY SCANDAL

Maurice Beresford

THE *Report on the Dismissal of Mr. Dixon James, B.A.*,[1] assistant lecturer in economic history at University College, Redshore, is a disturbing document whose effect is not lessened by the unusual secrecy surrounding its publication. No effort has been spared to place it outside the reach of university teachers and administrators, although it is possible that it may be introduced into the homes of members of the University Grants Committee through their wives, the book having acquired a fleeting literary success, some reviewers and booksellers mistaking it for a novel. This mistake testifies to the success of Redshore's deception, in which one detects the hand of the Pro-Vice-Chancellor, Professor Scory, who has achieved wider popular success as a writer of whodunits[2] than as a social theorist.

In the first place, the *Report* has been entrusted to a non-academic publisher, a considerable sacrifice since Redshore long ago established a loss-making University Press. Secondly, there is the damaging fact that no review copy was sent to this *Quarterly* until after one had been purchased on a railway bookstall. Thirdly, there is the pitiful attempt to disguise the personnel involved in this near-scandal by childish transpositions which would fail to deceive even a professor of atomic physics. Thus, Mr. Dixon James, the dismissed assistant lecturer, appears as Mr. James Dixon, and the subject of his now notorious plagiarized article[3] has also been tactfully modified. It was, of course, not on the topic of 'techniques of medieval ship-building' but on 'medieval sheep-breeding'. The investigating committee has also accepted too easily Mr. James's plea that a Professor Caton—once a strong candidate for the chair at Aberconway—had in turn plagiarized the article. Mr. James did not reveal how he had himself obtained the material for his article by a technique based loosely on that of Europa and the Bull, the Miss Europa in question being a female attendant at the Public Record Office during its war-time exile at Stoke Poges.[4] The method could have been deduced from the fact that none of his contemporaries has ever seen him either in the Record Office or the British Museum, which augurs either idleness or a chair.

[1] Kingsley Amis, *Lucky Jim*, (Gollancz), 1954.
[2] e.g. *Professor Ophelia's Death by Drowning* (1952); *Thou Old Senator* (1953).
[3] *Bulletin of the Institute of Historical Research*, Vol. CX (1953), pp. 1–2.
[4] *29th Report of the Deput keeper of the Public Records*, (1950), pp. 211–312.

The Report also conceals the fact that Professor Edward ('Ned') Welch, the head of James's Department, is the distinguished historian whose *Middle Age of Mussolini*,[1] written while in charge of the Mediterranean area of the Censorship Department, Ministry of Information, sold 500,000 copies. Indeed, without this income independent of his professorial salary the Professor and Mrs. Welch could never have maintained the lavish hospitality in cheap wine and modern music which proved Mr. James's undoing.

One defect of the judicial process of investigation, so dear to the best traditions of western academic freedom, is that a Report has to include so much verbatim evidence distasteful to any sensitive reviewer. Parts of Miss Margaret Peel's evidence-in-chief are more suitable for Dr. Kinsey's Report, while her remarkable private life seems an exotic background to a mere Senior[2] Lectureship in Constitutional History.

In consequence of the fictional camouflage with which this indelicate Report is surrounded, the authors have had to resort to a pseudonym and a title. Disdaining the usual quotations from the classics they have found a title in a music-hall song, another feeble attempt to hide the academic origins of the book; the name chosen for the pseudonym is 'Kingsley Amis'. Readers of *The Spectator*[3] will already know that Mr. Amis is a pseudonym of the well-known literary critic Mr. Little Tomkins, and internal evidence makes it likely that Mr. Tomkins in turn is a pseudonym of Miss Edith Sitwell, who may soon be rewarded for her services to the University College by another D.Litt. (*honoris causa*). Indeed, the pseudonym Amis (Fr. amis—friends) could be a veil for Miss Sitwell's well-known friendly approach to those critics who mistake her prose for verse.

It is to be hoped that the civic authorities whose elected representatives annually vote so much money to Redshore will consider what light this Report throws on the internal affairs of the College. No-one comes out of it well. Mr. James was appointed as a probationary assistant lecturer after a first-class degree in History at Leicester where, on his own confession, he specialized in medieval studies as the softest available option for an ex-service student. Other colleagues at Redshore exhibit in their evidence an alarming disrespect for their

[1] Hamish and Hamish, 1946.

[2] The use of the word 'senior' is academic, implying neither a diminution of Miss Peel's charms nor the passage into middle age.

[3] *The Spectator*, 26th February, 1954.

professors. Mr. Alfred Beasley, lecturer in Eng. Lit., was anxious to get as far away as possible from Professor Frederick Carno,[1] which does not augur well for the unity of linguistic and literary studies at Redshore. Professor Carno's own well-known high standards are shown by the figures in Appendix 5 (Finals: 1st class, nil; 2nd class, nil; 3rd class, 4. First year, 45 per cent fail).

But even if the administration of the History Department is revealed as distressingly lax, its records in examinations is good. All students pass if they have attended more than four of the five meetings of the Toynbee Society. In the face of the teaching this result is very creditable. Miss Peel was subject to long periods of absence while preparing for or recovering from overdoses of aspirin; Mr. James was self-confessedly (when sober) an incoherent lecturer and (when drunk) unquotable. Professor Welch has been perhaps too absorbed in his important series of articles for *Everybody's Weekly*[2] to be able to give more than an occasional lecture. The work of Mr. James at his Special Period or Topic[3] also reflects on the Faculty Board's control of the teaching syllabus. Mr. James varied the syllabus at will in an attempt to find one which would attract most of the female students while detering the male students, thus taking too literally the College motto *hic lucem et pocula sacra.* His own surprising indifference to the price of kine under Edward III is a sad reflection on his Alma Mater.

Unsatisfactory as some may regard the state of affairs in the Faculty of Arts, there is also room for improvement in the extramural field at Redshore. Public lectures, as they are described in the evidence of witnesses, are organized on a very free-and-easy basis, more attention being given to the choice of sherry for the Vice-Chancellor's prefatory party. Had this been otherwise Mr. James might have been spared the public intoxication which proved his final downfall. It is regretted that the abridged version of his lecture on *Merrie England* has been withdrawn from the current volume of the Berkshire Archaeological, Architectural and Natural History Society's *Proceedings.*[4]

Enthusiastic as all right-minded men must be for the employment of Arts graduates in Industry, there will be some who feel that the

[1] Surely a pseudonym?

[2] 'What History has Taught Me', *Everybody's Weekly*, issues of June 2, 9, 16, 23 and 30, 1954.

[3] *Calendar*, p. 341; *Arts Prospectus*, p. 143.

[4] Reading, 1954.

tycoon for whom Mr. James is now working in London went too far. To deliberately make Mr. James drunk on the eve of a lecture was a little extreme. Such well-known channels as the Redshore University Appointments Bureau are always available, and all students can profit from the free advice of the Secretary, Air Vice-Marshal J. M. Coolough.

Re-reading the evidence in this Report one's sympathies are with Professor Welch, already burdened with delicate family problems. Mr. James's own evidence has certain confusing elements, but they cannot conceal the serious list of offences which he had committed before his resignation was called for: falsehoods, incendiarism, seduction, traduction, assault, defacement of periodicals, personation and obscene language are faults of character which are disturbing in students but positively out of place in an assistant lecturer. It is feared that Mr. James's career is even yet not fixed on its life-path. Only last week this reviewer was rung up by him in a falsetto voice only thinly disguised with alcohol. Despite the claim to be a Mr. Gulley Jimpson it was quite apparent that the threats came from the disgruntled Mr. James hoping to gag the free expression of critical opinion in these columns. Mr. James should reflect on the sad lesson which History leaves us in the fate of the Old Pretender.[1]

[1] See Welch, E., *The Spirits and the Stuarts*, (Aberdeen, 1923), *passim*.

REVIEWS

THE PHILOSOPHY OF J. S. MILL. *By* R. P. ANSCHUTZ. (Oxford University Press, 15*s*.)

THE LIFE OF JOHN STUART MILL. *By* MICHAEL ST. JOHN PACKE. (Secker & Warburg, 42*s*.)

In the history of ideas there are few people who in their lives exemplify so well the spirit of their times as John Stuart Mill does that of his. It is not that he stands for any of the characteristic orthodoxies of the day, but rather that we see in his intellectual career the currents and cross-currents that underlie them, the conflicts in aims and interests and opinions and sentiments to which they were the various partial solutions. The first person to see the rich opportunities that his biography offered was, suitably enough, its subject, was Mill himself. To this day, there is no single work that acts as so effective a key to the understanding of the nineteenth century in Europe as Mill's *Autobiography*. And any later work on Mill must, if it is to command our attention, pass this fundamental test: that it says something that he himself left unsaid or that it explains something that he himself failed to explain.

By birth and upbringing, Mill was the product of an earlier age. English Utilitarianism, as moulded by Bentham and James Mill, was the last and most systematic expression of that great intellectual movement that we have come to identify with the thought of the eighteenth century although it was really only a part of it, if the liveliest: that is to say, the Enlightenment. Originating in England, around the turn of the century, in the thought and writings of the Deists, it flowered to best effect on the continent of Europe. It was above all in France that it made its home: and its representative figures were all either French or men peculiarly subjected to French influences — Voltaire, Helvétius, Holbach, Gibbon, Beccaria, Frederick the Great, Condorcet, Turgot.

Two intellectual elements characterize this movement and serve to distinguish it: one critical, the other constructive. On its critical side, it practised what might be called a systematic irreverence. Every belief, opinion, convention or habit that had ever gained any ascendancy over the human mind was dragged before the tribunal of Reason: none were exempt on the grounds of sanctity,

authority, privilege or age: all were subjected to the most ruthless cross-examination, carried out with great brilliance, illuminated by shafts of mockery and irony: and only those that could demonstrate their innocence to the satisfaction of all enlightened men were allowed to stand down. On its constructive side, the Enlightenment aimed at producing a truly general and rigorous science of human nature, at doing, as they often put it, for the moral and social sciences what Newton had done for the physical. But it was not merely a parallelism between the two kinds of science that they sought; consciously or unconsciously, they looked for really material similarities, and these they discovered to their satisfaction when they had reduced all psychology to the laws of association; laws describing exhaustively the combinations of, and relations between, the various discrete ideas or sensations of which human experience was held exclusively to consist. Sometimes the thinkers of this age went even further. The science of human nature was to be not merely parallel to the science of physical nature: nor merely similar to it: but actually identical with it, for by means of some materialist hypothesis it could be shown, was the hope, that all mental sensations were really so many modifications of bodily substance.

These two themes reappear in Utilitarianism, only with a difference. For whereas in the writings of the *philosophes*, the connexion between them had not always been clear, in the thought of Bentham and the elder Mill the two are definitely fused. And the influence here of course is Hobbes. The science of human nature is to provide the criterion for the criticism of morals: and only when it does, the criticism be said to be truly rational. The *philosophes* doubtless had done much good work in attacking accredited beliefs, prejudices and superstitions, but they had done it, on the whole, for the wrong reasons. To appeal to the moral sense, as Hume did, is simply to invoke one's 'own internal sentiment': to appeal to Natural Rights, as Condorcet did, is even worse, for Natural Rights are 'a pomposity on stilts'. What all these philosophers lacked was a truly scientific criterion, and this Bentham found in hedonistic psychology. 'Nature has placed mankind under the governance of two sovereign masters, *pain* and *pleasure*. It is for them alone to point out what he ought to do, as well as to determine what he shall do'. The new criterion was not merely factual, but simple: for the so-called secrets of the human heart now seemed as clear as daylight. 'If I had time to write a book' James Mill once said to Francis Place, 'I would

make the human mind as plain as the road from Charing Cross to St. Paul's.'

It was into this simple, rigorous orthodoxy that John Stuart Mill was born in 1806—as others are born into the large religions of the world. He was to be, though, not merely one of its adherents, but its supreme practical exponent. Of the extravagant hopes that were pinned on him one can get some measure from the famous educational scheme to which he was subject. As Mr. Packe rightly points out, it was an age for such schemes. But even in such an age it was remarkable: not merely for what it included—Greek at three, arithmetic soon afterwards, Latin, Algebra and Geometry at eight, Logic at twelve, political economy at thirteen—but also for what it excluded —all childish company and all childish pleasures.

And then on the verge of manhood, Mill rebelled. He has left a remarkable description of the whole incident in his *Autobiography*, in the chapter sub-titled 'A Crisis in my Mental History'. One evening:

> . . . it occurred to me to put the question directly to myself. 'Suppose that all your objects in life were realized; that all the changes in institutions and opinions which you are looking forward to, could be completely effected at this very instant, would this be a great joy and happiness to you?' And an irrepressible self-consciousness distinctly answered 'No!' At this my heart sank within me—the whole foundation on which my life was constructed fell down. All my happiness was to have been found in the continual pursuit of this end. The end had ceased to charm, and how could there ever again be any interest in the means? I seemed to have nothing left to live for.

Mill compared his condition to that of converts to Methodism smitten by their first 'conviction of sin'. For consolation he turned to the study of Romantic philosophy and literature: in the Germans, in Coleridge and in Wordsworth. But what he found there was something more than solace of a personal and temporary character. He found there something to enlarge the narrow psychology of Utilitarianism. He learnt to appreciate those two vast forces, one internal, the other external to the human mind, both shaping it, whose workings had been ignored by those who had watched over his education: that is to say, the Imagination and History. And in all this, as Mill himself recognized, he was not merely effecting a transition in his own intellectual career: he was epitomizing one in the intellectual career of Europe. 'The influences of European, that is to say, Continental, thought, and especially those of the reaction of the

nineteenth century against the eighteenth, were now streaming in upon me.'

At the height of his reaction against 'whatever was untenable in the doctrines of Bentham and of the eighteenth century', Mill wrote a brilliant pair of essays, one on Bentham, the other on Coleridge: yet even here we can see with which side victory lay. We see this, though, not by seeing one rout the other, and remain the master of the field, but by seeing one stay at home and throw its doors open to the other. We see, that is, which establishes itself as the host, and which as the guest. Mill's life work was to incorporate into the system of the eighteenth century the findings of the nineteenth. 'I found the fabric of my old and taught opinions giving way in many fresh places and I never allowed it to fall to pieces but was incessantly occupied in wearing it anew.'

The details of this synthesis, and the descrepancies between Mill's account of what he was doing and what he actually did, form the subject-matter of Mr. Anschutz's ingenious study. The difficulties that Mill made for himself in the sphere of morals and politics are well known. But Mr. Anschutz lays them out with great clarity: the introduction of qualitative considerations into what was originally the purely quantitative principle of Utility, a belief in spontaneity and the doctrine of self-development conjoined with a belief in determinism and the doctrine of circumstances, support for democracy on the grounds that it upheld non-intervention and also on the grounds that it assured co-operation.

But perhaps the most important respect in which Mill went back to the thought of the Enlightenment was that he adopted the view common to the French (though not the English) philosophers of the eighteenth century, that Logic and Epistomology are subjects of considerable practical importance, in that nearly all misguided political and social theories claim the support of false philosophical theories. Both the *Logic* and the *Examination of Sir William Hamilton's Philosophy* had avowed practical aims. What were those aims?—and how were they to be fulfilled. It is to this question that Mr. Anschutz addresses himself in the most interesting chapters of his book. And he shows how Mill tried to safeguard his notion of the sciences and hence of the social sciences both against a metaphysical rationalism which would ground them on the discovery of innate principles and against a crude empiricism which would limit them to the description of observed fact. Both these views, Mill thought, would have baneful

consequences, since both were ultimately inimical to reform. The first kind of view was represented by Coleridge and Carlyle, the second by Burke and Macaulay. In contrast, Mill called himself an *experientalist*: one, that is, who believes that all science was grounded on observation of fact and yet could, on the basis of this, attain to a knowledge of necessary principles. Mr. Anschutz argues with considerable force that this war on two fronts affected all Mill's views on Induction, the Syllogism and Mathematical reasoning, and that it accounts for many inconsistencies that ordinarily are either ignored or attributed to mere obtuseness.

But all this keeps us to the Mill of the *Autobiography*. And in reading the *Autobiography*, brilliant and penetrating document though it is, one cannot but feel that there is another Mill concealed from view, and that it is the relationship between these two that we wish to know. Now the division that I am suggesting is not, as one might think, one between the philosopher and the individual, between the intellectual career and the private life. The *Autobiography* is not exactly a reticent book. Its shortcomings are intimately connected with what I have signalled out as its great achievement: the almost schematic fashion in which it presents us with the conflicts of the century. For at times it affects us as though we were reading the history not of a man but of an age. When, for instance, Mill chancing across a pathetic passage in Marmontel's *Memoires* finds that all feeling is not dead within him, it is as though the Zeitgeist were, after a century of suspended emotion, moved at last to tears. When Mill turns to the poetry of Wordsworth, as a medicine for his state of mind, we follow the sensibility of Europe turning, like a dog to grass, to something of which it knows it has been starved. In this rather abstract, schematic style of presentation, there is something very French: and Mill who was intimately the product of the French eighteenth century, would have been much at home in the French nineteenth century.

But what we still need to know after reading the *Autobiography* is what lies behind, what animates the changing patterns of Mill's thought: what were the actual particular human motives at work. For men are after all not themselves movements of ideas or revolutions in sensibility: not even very small movements, or revolutions in minuscule. And yet it is rather in this vein that Mill writes of himself.

If however we turn to Mr. Packe's book for this further illumination, for insight into the mind and heart of the man himself, we shall

be disappointed. In this sense at least, it is not the definitive biography that he offers us. And the main reason for this lies in the *style* of the book. By this I don't mean merely its literary form, Though this is revealing. For, even apart from a number of actual solecisms, the language displeases, by a certain straining after vividness. The telling incident, the significant detail, the dramatic touch, the ironical aside are hideously overworked. When Mr. Packe wants to explain why Mill's relations with Harriet Taylor, whom he first met at a dinner party, could only be disastrous, he writes:

> There was also a contrary reason, a complicating circumstance that rendered it calamitous. It happened that the lady was his hostess; opposite him at table sat her solid, jovial husband; and upstairs, above the candlelight and the drinking glasses, her two children slumbered.

And worse is Mr. Packe's arch, deliberate use of clichés. Writing about Mill's struggle against the Contagious Diseases Act, he says:

> In the great naval ports, so many sailors were being lured from their faithful watch and ward by scarlet women of one sort or another, that a number of His Majesty's Ships were quite unfit for service. Now the dignitaries of the realm were men of the world, who knew prostitution as the oldest of professions, and generally preferred not to soil their hands with anything so distasteful.

But, as I have said, the vulgarity of literary style of this book is indicative of a certain vulgarity of style that goes deeper. The author adopts towards his main characters that bantering attitude which has now become a commonplace of historical biography. When it was originally introduced, in Cambridge, thirty to forty years ago, it had a certain iconoclastic point, as a reaction against what its most successful practitioner called 'those two fat volumes, with which it is our custom to commemorate the dead'. But it was a point that was soon made. And in less able hands, the method ceasing to be incisive, revealing, amusing, tedious panegyric is replaced by tedious irony: everything once again is reduced to uniformity, only no longer to a uniform respectability but now to a uniform absurdity.

So it is with the early Utilitarians in this book. Those qualities of theirs that command our respect and those that excite our repulsion are alike removed. Nowhere do we get the measure either of their grandeur or of their grimness: instead we are treated to a study of well-intentioned crankiness. In consequence Mr. Packe, having little understanding of, has little sympathy with John Stuart Mill's 'mental

crisis'. Bentham may have been in some ways a comic figure, but it can have been no very comic thing to have been instructed by him. If John Stuart Mill complained that his upbringing was unpoetical and godless, it is no answer to point out, as Mr. Packe does, that Mill read a great deal of the best English poetry under his father's sharp supervision, and that every Sunday he could have gone to Church with his mother and sisters.

And yet what this biography lacks in depth, it makes up for in breadth. The author has with remarkable industry collected a vast amount of material, published and unpublished, about Mill, and his life and times, and organized it with a fine architectural sense. A number of themes run through the book, each of which is well articulated and defined, and yet carefully related to all the others: so as to make the whole a triumph of anecdotal writing.

The question of absorbing interest in Mill's life is his relations with Harriet Taylor. How did it happen that Mill, such a careful, fastidious, proud man, one moreover mocked by many for being so cerebral in nature, the 'finishing governess' as Disraeli called him, came to write of this woman, the wife of a prosperous, Nonconformist, commonsensical wholesale druggist, in terms in which scarcely any man has ever publicly delivered himself on the subject of any woman? He spoke of her 'transcendent abilities'. 'In general spiritual characteristics, as well as in temperament and organization', he compared her to Shelley; 'but in thought and intellect', Shelley, 'was but a child compared with what she ultimately became'. Her excellences of mind and heart were, he declared, unparalleled in any human being he had 'known or read of'.

Carlyle said of the whole affair: 'I have not seen any riddle of human life which I do so ill form a theory of.' And ultimately one must agree with him. What Mr. Packe does is to fill in so many details, to give us so varied a picture of her through the eyes of others, so intense a picture through Mill's own, that the grosser improbabilities are removed. Harriet Taylor emerges as a woman of considerable intelligence and strong will, very conscious of her charms yet slightly disdainful of them, fastidious, high-principled, fearless, a trifle hysterical. Her early manner—of which Carlyle gives so vivid if malicious an impression, 'She affects, with a kind of Sultana noble-mindedness, a certain girlish petulance'—seems to have faded prematurely at the onset of chronic illness. Consciously or unconsciously, she constructed out of their unpromising situation a rela-

tionship that seems to have answered, better perhaps than would have any of a more orthodox kind, to some need in each of them: a strange nervous intimacy, that enthralled him without ever oppressing him, that gave her independence without any loss of security, emotional yet sexless, offending against the conventions of respectability and bohemia alike, a subtle, intricate, over-wrought artifact. Amongst the lapsed Nonconformists of the day there seem to have been a number of these experiments in emotional relations, but that of Mill and Harriet Taylor held a unique fascination for their contemporaries: and surely not merely on account of the eminence of one of those concerned, but in its own right—perhaps on account of the rare combination of austerity and intensity. If Mr. Packe cannot—as he cannot—give a solution to this enigma, he can, and does, give us the sense and feel of it.

Perhaps the next most interesting theme in Mill's life is his ill-fated friendship with Carlyle. Mr. Packe's documentation of the whole story is masterly, from the early *schwärmerei* to the long estrangement and Carlyle's final ignoble outburst, prompted by two obituaries on his former friend:

> 'Two more blusterous bags of empty wind I have seldom read. 'Immortal fame!' 'First spirit of his age!' 'Thinker of thinkers!' What a piece of work is man with a penny-a-liner pen in his hand.'

What the incident brings out so vividly is the feminine side to Mill's character. Like so many intellectuals *de pur sang*, he was fascinated by violent emotion and turbulence of character, by the heart worn on the sleeve: and like others in similar situations, he behaved in an unmistakably flirtatious manner, seeming to offer what all the while he must really have known he would keep for himself, his intellectual independence. In some ways what is most remarkable about the whole incident is how he played with fire and was not even singed.

To pick on these two incidents, though, does no justice to the noble proportions of this book, in which, though some incidents stand out, none are wholly detached. Nor does it do justice to Mill himself. For by concentrating on his personal relations, one overlooks one of the most remarkable features of his life—one to which Mr. Packe pays appropriate tribute: that this withdrawn, nervous, uncompromising intellectual had the most profound influence on all enlightened opinion on practical matters not merely in his own country but throughout so much of Europe and America. It is fascinating to

contrast the account given in this book of the influence of Mill's *Utilitarianism* or *Liberty* on his contemporaries, with the memorable description given by Lord Keynes of the reception afforded by the young men of his day, only thirty to forty years later, to another great classic of English moral philosophy, Moore's *Principia Ethica*. For if one was the bible of a political movement, the other was more like the subtle doctrine of a hermetic sect.

RICHARD WOLLHEIM

INTERNATIONAL RELATIONS. *By* PROFESSOR C. A. W. MANNING. (U.N.E.S.C.O., 4*s*.) (In the series *Teaching in the Social Sciences*.)

It may seem a strange thing to say, but this book is altogether too reasonable. 'My experience in universities', Professor Manning quotes Sir Walter Moberly as saying in another connexion, 'is sufficiently long to make me aware that, when there is talk of a new subject in the university, the impulse of hospitality is not one which is always very strong in existing departments.' Yet he directs his arguments almost exclusively to probable critics, largely neglecting general university opinion. In the case of international relations, to judge from a reading of this carefully argued report, the especially inhospitable established interests appear to be history, law and politics. Professor Manning concedes without argument to the professors of these studies that their subjects are magnificent university subjects and goes on to explain to them how many shortcomings the study of international relations could well develop from a university point of view. This may be the best way to commend the study of international relations to the universities; but it makes the book rather tough going for the general university reader, and that is a pity. For Professor Manning has given many years of thought to the question in hand, and in the course of his argument he sometimes gets very near to the roots of things, where the basic principles of university education are concerned.

On the face of it there is a very strong case. The English report—one of several national reports on the teaching of international relations which Professor Manning had before him in the preparation of his own book—says quite squarely: 'The principal reason for introducing "international relations" into the teaching at Oxford, and probably elsewhere, was that its subject matter forms such a part of everyday existence that it cannot be ignored by the scholar, and

students of history and politics must know something about it. Neither is the possibility of the study being a contribution to peace overlooked at Oxford!' To the plain university man it might seem that these are almost overwhelming arguments in our day.

Of course there are serious difficulties. What previous studies are necessary for a student who is going to study international relations 'at a university level' and 'with profit'? Of course he needs to be an adequate economist, historian, lawyer, sociologist, politician, anthropologist, psychologist and moral philosopher. Without being well grounded in all these matters he can acquire no more than a superficial understanding of international affairs. But in the face of the fragmentation of knowledge at the universities to-day cannot a similarly formidable case be made against other fields of study? What of economics? And of law? History in the past has had a fine record as a means of university education. At Oxford, for instance, it was for many years the most populous of the undergraduate schools and any Oxford man who subsequently distinguished himself in any one of a number of fields of public service was likely to have received his university education at the hands of the historians, modern or ancient. But he had almost certainly had his previous education either in the classics or in history. He knew nothing of economics, of law, of philosophy or of psychology—indeed of none of the things in which, on the principles referred to above, he would need to be proficient if he could hope to acquire anything but a 'superficial' understanding of, for instance, nineteenth century history.

A good deal more rigorous and dispassionate thought is needed before we shall really know why for fifty years or so—in recent years it seems to have lost ground—history provided such a successful university education for the youth of England; and it is very much to be hoped that someone will do the thinking and will tell us. But it was quite certainly not because the undergraduates who studied the subject, or even the distinguished scholars who taught it, had previously acquired proficiency in a number of prerequisite, specialized, scientific disciplines. On these principles every study in the humanistic field, and most in the fields of the applied sciences, would have to be post-graduate; indeed no-one could ever be sufficiently equipped to start upon them 'with profit'.

There are other difficulties too. What is the proper object of study? Is it the factual, international nexus? Is it the study of the possibilities and necessary conditions of world government? Or what is it?

These vital and quite fundamental questions which arise in this most interesting area of discussion are incisively and lucidly discussed by Professor Manning, and he is able to give many most illuminating quotations from the national *rapporteurs* who had written papers arising from the experience of the universities in their own countries. In particular French thought on the subject, represented by Professor Chevallier, presents one attractive point of view with notable lucidity and persuasiveness. But these discussions primarily show that there is an immense amount of thinking to be done, and that it is of the greatest importance that it should be done. There are far too few able and devoted scholars, whether old, middle-aged or young, who are able to devote their lives in the universities to the dispassionate, academic study of this great subject; and it is time that the matter was approached from this point of view.

It is not necessary to add that Professor Manning, who has done so much to clear the minds of his critics, would agree.

C. R MORRIS.

ORIGINS OF AMERICAN SCIENTISTS: A Study made under the direction of a Committee of the Faculty of Wesleyan University. *By* R. H. KNAPP and H. B. GOODRICH. (University of Chicago Press for Wesleyan University, Middletown, Connecticut.)

It is no easy task to review properly even a short book within the compass of a few hundred words but in the case of so monumental a volume as the present one, running to about 200,000 words, is well nigh impossible, so that I shall attempt no more than to whet the appetite of potential readers by outlining the scope and ambit of the work, though in the process I shall not always be so loud in acclamation, as I should wish, of the authors' most praiseworthy effort in a complicated field.

This field is none other than 'an enquiry into the educational origins of American scientists and the circumstances which have led them to scientific careers'. Dr. Goodrich is Professor of Biology and Chairman of the Committee and Dr. Knapp is Associate Professor of Psychology in the Wesleyan University—a powerful combination. In their book they examine and interpret, according to certain prescribed and carefully defined rules, the records of some 18,000 graduates from 490 colleges and universities.

There is, of course, a very large number of 'scientists' in the United States, in the sense of graduates who have made their main studies

on the scientific side; but out of this very large number of rank and file, the Committee decided that the method adopted many years ago in the Reference Book *American Men of Science*, of distinguishing outstanding men as 'Starred Scientists', hardly gave enough material (only 2,600 names are so starred) for satisfactory statistical treatment—a method of treating the subject which appears to have been regarded as absolutely essential. It was determined therefore to include in the survey, over and above the 'starred scientists', all Ph.D. graduates, 'or the equivalent', a decision which led at once to the 'more satisfactory' number of some 18,000 names. The names were taken from the 1921 and 1944 editions of *American Men of Science*, particularly those who took their first degrees of B.A. during the decade 1924-34. These names were then divided into sections according to:

(1) The individually chosen field of Knowledge (Mathematics, Physics, Chemistry, Astronomy, Geology, Biology, Psychology);

(2) The Institution awarding the B.A. degree;

(3) The date of the B.A. degree.

It is quite evident that the information thus gathered and classified is in itself of much interest and when studied should yield results of value and significance; the trouble is, of course, that it may well be a matter of opinion as to whether all the interpretations are soundly based. (Is the reviewer being too Puckish in suggesting that in spite of the good job of work done by the authors, there may well be matter for more than one Ph.D. thesis still to be drawn from the material they have so efficiently collected!)

The authors' considerations are not only directed to the title-object, namely, the origins of scientists, but are also and quite properly, in view of the nature of their information, to the performances of the institutions concerned; indeed, one of the most interesting conclusions drawn is, that the East no longer has pride of place in the production of scientists (as defined) but must yield to the Middle West and the West: the Atlantic seaboard they suggest, in losing the 'frontier spirit', has lost, too, any eminence of this sort that it ever had! At first sight another wonder-provoking conclusion is that it is the smaller institutions that are really most efficient in making scientists. Such big fellows as Harvard, Yale and Princeton, with their distinguished brother institutions such as Columbia, Michigan, Pennsylvania and Massachussets Institute of Technology put up only a 'mediocre performance' in comparison with some of the smaller colleges such as Reed, Swarthmore, Oberlin, Wesleyan,

Kalamazoo, to mention but a few from the imposing lists. I said that this was remarkable at first sight, it is even remarkable on reflection but perhaps rather less so when it is realized that the basis of comparison is a quantity termed the 'Productivity Index' (defined as the number of Ph.D.'s per thousand of B.A.'s). Thus Kalamazoo with its high Index of 66·3 certainly has something on Harvard with its lower Index of 18·4 but with respective B.A. numbers of 377 and 7,818 Harvard can clearly claim a larger army of Ph.D.'s, even if those originating from the smaller colleges must, by definition, fall out. What this 'something more' really represents evokes interesting discussion and speculation by the authors in more than one of their twenty chapters. Kalamazoo is, however, easily beaten by Reed with the prodigious Index of 131.8 in a B.A. group of only 220 and Reed heads the list of the fifty institutions who are, according to the Index, most 'effective' in the production of scientists. About this list of the best fifty the authors say: 'Only three universities of eminent reputation, namely Johns Hopkins, Chicago and Wisconsin' appear in the list, but 'forty are small liberal arts colleges—mainly located in the Middle and Far West'. A striking, though hardly surprising, fact emerges from the lists, that not one Catholic college in the whole list of 490 institutions is at all effective.

As for the interpretation of the mass of information which is so exactly if rather repellingly gathered in the numerous Tables and Appendices (in some cases more attractively presented in Curve form), the authors have attempted with some success, to create a coherent and understandable whole by introducing three hypotheses —'Cultural Hypotheses (1) The Protestant Hypothesis; (2) The Frontier Hypothesis; (3) The Socio-Economic Hypothesis.'

Possibly the nature of these hypotheses may be inferred from the remarks I have already made. I can only say now that, as a foreigner with only a slight first-hand knowledge of conditions in America from the Atlantic to the Pacific, I have found the discussions around these hypotheses most interesting but only partially satisfying. The reader of the book itself—and I hope that there will be many in this country—must see for himself; he will find that the book is written with restraint and reason, in impeccable and pleasing English, is well printed on (Oh! such) fine paper and contains an enormous mass of information about American scientists and the institutions which have had a part in producing them.

R. WHIDDINGTON

ROBERT GROSSETESTE AND THE ORIGINS OF EXPERIMENTAL SCIENCE, 1100–1700. *By* A. C. CROMBIE. (Oxford University Press. 35*s*.)

It is unusual nowadays for the working scientist to give much consideration to the logic of his methods owing, no doubt, to the immense complication of modern science and the consequent need for specialization and the attention to purely scientific detail. This may perhaps partly account for the distorted picture of scientific method given by many text-books of logic since the middle of the nineteenth century. Their emphasis on the inductive procedure—the discovery of laws by generalizing from particulars—and the too easy assumption that the scientist sets out to discover causes and the common properties of things have recently occasioned unfavourable comments both from logicians with a first-hand knowledge of science and from working scientists who fail to recognize their actual procedures in the logical accounts.

This last is not, in itself, a serious objection to the logical accounts, for it should not surprise us if the logician discovers behind the scientist's methods the assumption of logical principles which the scientist himself, because his interest is in the workability of his methods rather than their logical analysis or justification, has failed to notice. Nevertheless, the contemporary re-examination of scientific method which has resulted has brought to light the weaknesses of the accepted account of science in terms of inductive generalization. But unfortunately the reaction, like so many reactions, has been too severe and has tended to distort the account in the opposite direction, so that it is becoming fashionable to regard science as using only the hypothetico-deductive method and to regard this method as not involving induction. This is surely a mistake. The hypothetico-deductive method is fundamental to science but it depends on induction in two ways. What Mr. Toulmin calls 'natural history' and rather arbitrarily excludes from science is part of science, at least in the sense that ordinarily generalization usually *suggests*, even if it does not *provide*, appropriate hypotheses from which the hypothetico-deductive method starts. But even if this is disputed the probability of the hypothesis is increased (or, if this is objected to, its usefulness or satisfactoriness established) ultimately by some enumeration of the particulars to which the deduced consequences apply. The logic of induction remains even if the process of generalizing *from* particulars is rejected: the traditional account is incomplete rather than wrong.

Robert Grosseteste, who lived from about 1168 to 1253, was a

working scientist who, like so many others of his time, gave considerable thought to the logic of his methods and, perhaps because he was a working scientist, avoided many of the mistakes of later logicians. This is clear from Dr. Crombie's painstaking and scholarly book. Dr. Crombie's more general thesis is that during the thirteenth century 'a systematic theory of experimental science was understood and practised by enough philosophers for their work to produce the methodological revolution to which modern science owes its origin'; his more particular thesis is that this was largely due to the work and influence, especially on Oxford and Paris, of Robert Grosseteste.

Dr. Crombie makes a formidable and heavily documented case for this view. He first sketches in the background of twelfth-century science against which Grosseteste's work must be seen and goes on to discuss his explicit writings on the theory of science, induction, verification and falsification and mathematical physics. He then deals with the influence of these writings, first on Oxford and then on continental science, by way of specific theories about astronomy, heat, reflection and refraction, the rainbow and the magnet. He next takes the development of theories of the rainbow down to the end of the seventeenth century as an extended example of the scientific method in action and, in the final chapter, summarizes the growth of the modern theory of experimental science by referring to writings on the subject by Francis Bacon, Galileo, Descartes and Newton.

Influenced by, on the one hand, the Augustinian-Platonic tradition and, on the other, the new Latin translations of Greek and Arabic writings, especially of Aristotle's *Posterior Analytics* and *Physics*, and Euclid's *Elements*, Grosseteste was aware of the importance both of the application of mathematics to nature and of observation and experiment. The method involved, according to Grosseteste, the reaching of general principles or universals by induction from particulars of sense and the deduction of particular occurrences from these general principles, which he regarded as their explanation revealing their causes. Thus he combined the older, deductive view of science and the newer, inductive view. He distinguished clearly between mathematics and natural science on the grounds that in natural science, but not in mathematics, empirical verification of the conclusions was necessary and that in mathematics there was no difference between arguing from premisses to conclusion and arguing the other way round, whereas in natural science the difference is

of the utmost importance. Moreover he recognized, and this is of great interest to us, 'that a more abstract theory, capable of providing new knowledge not included in the empirical generalization of the "common nature", could not be inferred from this generalization, and could be reached only by an act of intuition by the mind reflecting on the classification of facts made by induction'. Here, surely, are the seeds of the hypothetico-deductive method and the recognition of the importance of non-instantial hypotheses, together with an awareness of the rôle of induction in this connexion. Further, Grosseteste's inherited belief that nature could be properly understood only through mathematics led him to a belief in the importance to science of deductive systems and measurement and an understanding of the fact that mathematics could correlate or describe occurrences but not lead to knowledge of the causes producing change. Add to this his realization that knowledge of causes must be incomplete and only probable and that 'established' hypotheses were not established conclusively or to the exclusion of alternative hypotheses and we have so modern-sounding a theory that we may be permitted to wonder at the mistakes of later writers on the subject.

When all this is said it may be added that Dr. Crombie perhaps overstates his case, or gives too little support for it, when he asserts that 'the conception of the logical structure of experimental science held by such prominent leaders as Galileo, Francis Bacon, Descartes and Newton was precisely that created in the thirteenth and fourteenth centuries'. These seem strange bedfellows and more discussion is needed to show that they can be covered by the same blanket without concealing differences which were radical.

Despite its more general aim this is a highly specialized book for a narrow public—the scholar of the history of science. The general reader, the undergraduate and even the university teacher of science or philosophy will perhaps find more detail than they require about much that is, to them, irrelevant; it may seem to them that 'influences' are often pursued for their own sakes rather than for the light they shed on the practice and development of the experimental method. However, Dr. Crombie can hardly be blamed if sometimes he has been carried away by such fascinating manuscripts and it would be ungenerous to regard this as a serious criticism of a work of such prodigious scholarship, on the production of which so much loving care has been expended by both author and publisher.

PETER ALEXANDER

THE SHAKESPEAREAN MOMENT. *By* PATRICK CRUTTWELL. (Chatto and Windus. 18*s*.)

Literary criticism has for some time tended to regard Shakespeare and Donne as our two supreme masters of poetic style. Theirs was, in Mr. Cruttwell's words, a poetry able to 'build a transcendental meaning out of particular experience', or, conversely, 'concentrate many orders of experience on to a single point' (pp. 106–7). His aim is to show that such poetry grew from a society possessing similar qualities and how, the balance lost, poetic drama and the tragic sense became impossible. He compares 'the Shakespearean moment' under James I with Dante's ideal partnership of Emperor and Pope, as a society trying to realize in England 'what had been a dream for Europe' (p. 109). It was a 'moment of convergence' unifying Church and State, city and countryside, under the Anglican settlement and a Stuart monarchy (p. 249). But it was short-lived.

Mr. Cruttwell navigates the attendant complexities with skill; but he must be prepared for certain disagreements. His handling of the Sonnets lacks balance, and in order to preserve the medieval emphasis he ignores the relation of Shakespearean drama through Seneca, who is not mentioned, to the classics. The attack on Milton shows too little recognition of the degree to which his thoughts and poetry were royally centred, but the case against Dryden is better made, and Pope escapes reproof. Mr. Cruttwell's appreciation of the poetry, though he shows less feeling for the action, of Shakespeare's last plays is well pointed, and his treatment of Marvell's *Horatian Ode* as an aftermath of the Shakespearean moment excellent. The close reference of Augustan classicism to Puritanism, at first sight startling, at least startles us into thought.

Two general cautions are needed. We too readily assume that poetry can be satisfactorily handled as printed language, forgetting that the greatest poetry comes into being at that point where printed language, however brilliantly juggled, ceases to be the main thing. Because certain inclusions and tensions exist in the linguistic thought-play of Shakespeare and Donne, we unwarrantably assume that such riches cannot be found within the total work of poets whose language, in isolation, is less crammed. The error is serious, and its consequences far-reaching.

Another caution—granted that the dramatic manner and great tragedy appear to lie behind us, we must not suppose that they and their attendant contradictions are necessarily the last, though they

may be the first, word in human wisdom. The ages of Faith composed no great drama; Shakespeare moved from tragedy to the last plays and *Henry VIII*; and Nietzsche, after yearning for a tragic civilization in *The Birth of Tragedy*, climbed on scorn of it to the heights of *Thus Spake Zarathustra*. There is always the will to transcend tragedy, and of this will we may suppose that the greater Augustans and Romantics were a part.

Nevertheless, Mr. Cruttwell's thesis is important; more, its central emphasis is all-important. We are reminded that Shakespeare could compare Richard II with Christ (p. 189), and that Donne saw Elizabeth I as reigning with Him in Heaven and James I as His vicegerent on earth (p. 109). But, after the execution of Charles I, 'all those feelings for Church-and-State-as-one which we have found to be dominant in the Shakespearian moment and its society' (p. 188) were staggered, to become henceforth the preserve of the half-witted:

> Never again would it be possible for men whose minds were *not* crankish, sentimental, and superstitious, to bring to bear on the head of the secular State that cluster of emotions which centre round saintliness, martyrdom, and, in the last resort, the supreme martyrdom of Christ. (p. 224)

More than kingship is involved. The problem sinks to the heart of man and his relation to the universe. What was lost was not merely political, nor even religious; not nature, nor supernature; it was both, and neither; and when we respond to Shakespeare's poetry in *Pericles* and *The Winter's Tale*, we get a breath of it. I should call it the sense of the *magical*.

Mr. Cruttwell's service lies in his isolation of this point of time, and just exposition of its nature. His later assessments are more questionable. He is repelled by the heroic idealisms of Milton and the Augustans and says nothing of the great Romantics. But can we not see the successors of the Shakespearean moment as themselves striving, each in his own setting, to recreate the lost contact? Pope did so in one way, Browning in another; Swift was a martyr to the cause; and as for drama, Byron's heroic life and work, taken together, show dramatic tensions and inclusions covering the whole field, and more, of our argument. As the story unfolds, clearer and clearer sounds the need for some new synthesis of Church and State; on the Continent, in *Emperor and Galilean*, in *The Will to Power* (a 'Roman Caesar with the soul of Christ'); in England, with Tennyson,

AUGUST

THE RIDDLE OF THE SANDS

Some try to do it by standing on one leg and wiggling their spare foot about in the sea. Then they hop, ponderously, a yard or two inland and thrust the foot thus purified into a sock. Provided they do not lose their balance they are soon half-shod. But now they face the even more delicate problem of removing the sand from their remaining toes without wetting the foot which they have just accoutred. A ballet dancer could do it, an acrobat could do it on his head. The average holiday-maker fails.

A more sultanic technique is favoured by those who send small children to fetch water in their little buckets. These citizens carry out their ablutions in comparative comfort; but the buckets represent what planners call an administrative bottleneck, and sometimes, when the tide is out and the children are fractious, this formula will not work. Even when it does, there are still deposits to be removed from between the children's toes. We are a maritime nation, the heirs of Drake and Frobisher and Nelson. The sea, we are often loosely but emphatically told, is in our blood. How is it that, down the centuries, we have never evolved a satisfactory method of extricating ourselves from this small predicament? Of what flaw in our national character is this failure a symptom? No one knows, and regrettably few care.

The Midland Bank prides itself on the help it gives to its customers. Yet it confesses with regret that, among all the many services which the Bank provides for holiday-makers, there is none which solves this riddle of the sands.

MIDLAND BANK

with Bernard Shaw. It would be a pity to rest back on a nostalgic appreciation of the linguistic agilities of Shakespeare and Donne while neglecting this central and still developing tradition. It matters little whether we have any more poetic drama or metaphysical poetry, and those in any age who 'write dull receipts how poems should be made' grow wearisome. What we have to do is to fix our attention on that *for* which such splendours once existed and whence they drew their magic: else, as Donne has it, 'a great Prince in prison lies'.

G. WILSON KNIGHT

THE RESCUE AND ACHIEVEMENT OF REFUGEE SCHOLARS. *By* NORMAN BENTWICH. (Martinus Nijhoff, The Hague, 1951).

There was need for an authoritative account of this great enterprise in deliverance and rehabilitation as undertaken particularly by Great Britain and other countries of Europe, and no one is better qualified to give it than Professor Norman Bentwich. In less than a hundred pages he presents with admirable clarity the dimensions of the problem facing the rescuers and its complex diversity, the degree of success achieved in finding new homes and scope for the exiles, and the distinguished contributions many of them made, particularly in relation to the allied war effort, along the lines of their several specialisms. Taken as a whole this was an enterprise of which those who had most to do with it may well be proud and their countrymen thankful. Two of the former, Lord Beveridge and Professor A. V. Hill, F.R.S., contribute respectively a foreword and an epilogue.

The share taken by the United States in the work of rescue, the largest of all, has been told already, and here receives only passing mention. Great Britain, as is natural, made the next largest contribution, having the amplest resources and opportunities, but several other countries played their part; many readers will be probably surprised to hear how early and how valuable was that of the Turkish Government. It is especially interesting to read of the achievements in group and institutional rescue, of which the Warburg Institute in London is the most notable instance. Altogether over six hundred refugee scholars and scientists were received in Great Britain from over ten countries, more than half of them from Germany. As the author is prompt to recognize, the cumulative value of this influx to

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the receiving countries may only begin to become known generations hence, as was the case with the historic precedent of the Huguenot exiles.

It is a sign of the complete success of the author in fulfilling his self-limited task that one wishes he had extended its scope. This volume is the first of a new series of 'Studies in Social Life', and it certainly does not adequately provide such a study, for to be rescued and to find a new home in a foreign country is not itself social life so much as the opportunity to continue it under new conditions. All who had even a small part in work for the refugees from Europe know what complicated problems of readjustment, re-education and assimilation had to be met and overcome by them, and this aspect of the matter receives disappointingly scant mention. One would like to know, for instance, to what extent assimilation was more easy in one country than another (it was clearly and understandably difficult in Turkey); where the greatest difficulties were met—in language and communication, or in the alien character of the foreign way of life; which set of refugees were most homesick; whether the scientists found it more easy to take fresh root than the scholars and which professional group became most thoroughly at home; and how all such difficulties were tackled. These are questions that can only be answered now, while the living evidence is still available; they cannot wait for the verdict of history. But they ought to be adequately investigated if we are to have anything like a true picture of this tragical and heroic human episode. Perhaps Professor Bentwich will himself undertake the task, or at any rate expand his too short account in a second edition to deal with some of these questions.

JOHN W. HARVEY

COMMONWEALTH UNIVERSITIES YEARBOOK, 1954.
(Association of Universities of the British Commonwealth, 3 gns.)

It is just forty years since the Yearbook of the Universities of the Empire was first published. The *Commonwealth Universities Yearbook 1954* is the thirty-first in the line of succession. Despite the family resemblance to the first, as indeed to all of its predecessors, the new Yearbook is inevitably ampler in figure; more than one hundred pages have been added to its capacity since last year. But it is in comparison with the first of the series that the differences are most

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significant in that they reflect the changes of the epoch which began in 1914. More than twice as many institutions are recorded, in pages which have more than trebled in number and, allowing for smaller type and closer setting, the content has obviously been increased in still greater proportion. The changes are not only in the size and number of the member institutions, but sometimes in the nomenclature and arrangement entailed by the new status of the countries to which they belong. India, Ceylon and Pakistan have their own sections, with a total of thirty-five universities; there is a young University College of Khartoum within the Condominium of the Anglo-Egyptian Sudan; while the universities now in the Republic of Ireland are recorded in the discreet neutrality of an appendix.

As a work of reference, the value of which must rest on accuracy as well as comprehensiveness, the book seems proof against such critical tests as a reviewer can devise within the limits of his own time and knowledge. On the other hand, even one who is accustomed to its frequent use as a reference book always kept within arm's reach cannot fail to be impressed by the wealth of information which more deliberate perusal reveals. Quite apart from the main sections of the book which convey a concise and clear indication of the organization, the staff and range of studies of each of the universities, there is a harvest of incidental information. No less than fourteen pages are required to list the degrees and degree abbreviations of the Commonwealth Universities. The appendices are particularly useful, especially those on Postgraduate Awards. The appendix on American Universities has been omitted in recent years but a guide to information about them is more succinctly provided elsewhere, including the useful pages on Anglo-American Academic Relations. The section on University Admission which, so far as the United Kingdom is concerned, occupies fifty pages, is at least a valiant attempt to cope with a mass of information which defies simple presentation. At a casual estimate, the names of more than 30,000 staff and officials are recorded in the book and also listed alphabetically in the index, a fact which is readily appreciated by any university officer having to identify a correspondent from overseas whose name is only partially decipherable and whose subject or academic status is not known. Given the Yearbook and given the name of his university (and sometimes even without it), he can readily be traced. The point is less trivial than it may appear. As a directory alone, the Yearbook fulfils more than a merely useful function. Even the distant and formal

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introduction to one another which it effects is a first step to personal understanding and co-operation.

The criticism is often made, and no doubt as often considered by the editors, that too long a time elapses between the collection of the material and the publication of the book. University correspondents are now assembling their contributions to the next book which will not appear until a year hence. It has been suggested that the work might appear separately in two volumes, the earlier one dealing with the United Kingdom and the other with the rest of the Commonwealth. Considerations of size may eventually compel the presentation of the book in two volumes; even so, it is to be hoped that they would appear together. Meanwhile if the idea of a family of Commonwealth Universities is important, and it is of the highest importance, let the family portrait-album remain one and indivisible as long as may be, rather than place between separate covers the members who are overseas. Any circumstance, even slight in itself, which emphasizes rather than sets out to overcome geographical separation is surely to be deprecated.

If, therefore, the Yearbook is to continue in one volume and if, as it is clear that they will, the universities are to expand in number and in the scale of their work, the available pages must be used as shrewdly as possible. It may be questioned whether the appendix on University Admission justifies the devotion of so much room to the varying regulations of the United Kingdom universities. In the nature of things, now and for some time to come, no statement that the Yearbook may afford to include can be exhaustive or final. Moreover, those who seek admission, or who advise those who do so, are likely to have access to other sources of information. A summary on the lines of the present General Outline, together with reference to the various authoritative sources might serve the purpose just as well. Again, the information given for the various universities under the head of 'The year 1951–1952' might be reduced without disadvantage. Minor benefactions, visits of members of staff of other universities, conferments of honorary degrees, for example, are items of news admirably suited for inclusion in University Gazettes, but no longer news when they appear in the Yearbook. Similar considerations apply in the case of information given under the head of 'Principal Changes in Regulations'. These brief notes have little meaning without reference to the official publications in which they are set

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out in full. In most cases the relevant Calendars will have been made available well in advance of the Yearbook itself.

These are, however, minor points. The Yearbook accomplishes what it sets out to do with signal success. One cannot but admire the patient care with which the raw material is assembled from all parts of the Commonwealth, arranged with precision and presented with a typographical seemliness which is pleasant to the eye. And nobody who has knowledge of the responsibilities of editing and printing would expect that such a work could be produced more expeditiously than is already the case.

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THE INFLUENCE OF R. W. CHAMBERS ON THE DEVELOPMENT OF UNIVERSITY LIBRARIES. *By* JOHN WILKS. (Second Chambers Memorial Lecture; H. K. Lewis, 3*s*. 6*d*.)

The modern English universities, unlike their counterparts in Germany and the United States, were slow to appreciate the value of a well-equipped and well-organized library, and there can be little doubt that their failure in this respect seriously retarded their progress. University College, London, was no exception: the average annual expenditure on the Library in the fifteen years preceding Chambers's appointment was £165. Chambers, however, planned to make the Library the centre of the academic work of the College, and this in 1901 was a revolutionary idea. The emphasis at that time was still on preservation, and even in the great libraries the scholar-librarian concerned himself usually with the form rather than the content of books. Chambers was interested in the use of books for productive scholarship and as instruments for the training of students, and it is not after all so surprising that the authorship of the epoch-making studies of *Widsith* and *Beowulf* and the organization of the first university library in this country which was resolutely geared for use should have been complementary achievements of the same mind. The really astonishing thing is that they were also concurrent achievements, but then Chambers had, it is clear, quite extraordinary energy and power of application and, on the library side, he further secured the help of very able assistants.

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his students to the Library in order 'to teach them how to find their materials, how to test their genuineness and how to weigh the value of their evidence'. German universities had built up seminar libraries for this purpose in addition to the central university library, but such duplication seemed remote from what was then financially possible at University College. The central library must be maintained, and it needed all the resources available. The solution of the problem was found in housing the main collections in a series of adjacent rooms, each of which corresponded to one of the main subjects of the curriculum and served as a seminar room for the teaching department concerned. The room became for the honours student not merely a place of study, but also a workshop in which he learnt from his teachers to use books as tools.

The scheme was criticized, and no doubt it was too closely tethered to the teaching of the honours student. It gave little scope to the pass undergraduate, and one may also suppose that the teaching arrangements were a source of confusion to the postgraduate reader. The first drawback has been largely met by later reorganization, and the second was mitigated from the outset by the geographical position of University College. Chambers had the best of reasons for knowing that the British Museum was on his doorstep. At all events, his conception of the library's function was more significant than its application to any physical plan, and new and more flexible methods of building construction will enable it to be realized more fully than he could ever have envisaged: indeed some recent American university libraries are designed on principles which he would surely have recognized as similar to his own.

Chambers relinquished the Librarianship for the Quain Chair of English in 1921. By then he had appointed and trained a staff of senior assistants, all of whom were to rise to positions of eminence in which they could apply and extend his ideas. The earliest appointed, Luxmoore Newcombe, succeeded him, and then in 1926 went on to become the first librarian of the National Central Library. Dr. Offor went to Leeds, Dr. Bonser to Birmingham, and both represented in themselves Chambers's conception of the partnership of scholarship and library administration; both spent a long and fruitful period in their adoptive universities and both played an important part in the training of the next generation of university librarians. On Newcombe's departure Mr. Wilks succeeded to the librarianship of University College, and for more than a quarter of

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